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OF

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Mr. G. NEWPORT'S Prize Essay upon *Athalia centifolia*, or the Black Caterpillar of the Turnip. With one plate. Price 1*s*.

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Page 29, Mr. F. Smith's article on *Hylæus* is illustrated in Plate III.

Fig. 1, represents *H. dilatatus*, Kirby; 1 *a*, face; 1 *b*, lateral view of the head, showing the concavity of the basal joint of the antennæ.

Fig. 2, *H. plantaris*, Smith; 2 *a*, face; 2 *b*, underside of abdomen, showing the patch of rufous hairs; 2 *c*, intermediate leg.

Fig. 3, *H. cornutus*, Kirby, MS.; 3 *a*, face.

Fig. 4, section of bramble twig; A, B, C, provisioned cells, with an egg in each; D, E, empty cells; F, serpentine passage to the nest.

120, *Platymeris ducalis* was stated by mistake to be in the British Museum Collection.

188 et seq., *Panorpa nebulosa* and *debilis*, and *Bittacus pilicornis*, have not been found among the other type-specimens contained in the Collection, formerly in Mr. Newman's possession, presented to the British Museum.

243, line 5, omit the reference to Plate XVII. fig. 7.

117, Proceedings, October 1844. The new Indian *Œstrus* here mentioned proves to be a yellow winged *Asilus*.

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The Author	Agassiz (L.), Nomenclator Zoologicus, fasc. 5, 6, 7, 8.
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Ditto	Bruxelles, Mémoires des Savans Etrangères, publies par l'Académie Royale de. Tom. 15. 2d Part 16, 17.

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Ditto	—— Manuel Populaire pour l'Education de Vers à Soie. Tarascon. 1843.
Ditto	—— Le Magnanier infaillable, ou Traité de l'Education des Vers à Soie. Paris. 1838.
Ditto	—— Prospetto demonstrativo dell' Educazione attiva de Bachi da Setà (Plate).
Ditto	—— Dialoghi de Bachi da Setà.
Ditto	—— La Science de la Sétifère.
Ditto	—— Culture de la Soie.
Ditto	—— Maladies des Vers à Soie, par Sudes.
The Society	Notice of Premiums offered by the Society for the Encouragement of Arts, &c., for the Sessions 1845—1847.
Rev. F. W. Hope	Sparrman, Voyage to the Cape of Good Hope. 2 vols. 4to. 1786.

The Society	Entomologische Zeitung. Herausgegeben von dem Entomol. Verein zu Stettin. 1840—1845.
Rev. F. W. Hope	Stillingfleet's Tracts.
Ditto	Swan River News, for 1844, 1845. 8vo.
Rev. F. W. Hope	Thunberg, Travels. Vols. 1—4.
Ditto	Tuckey, Narrative of Voyage to the Congo. 4to.
Ditto	Turner, Account of Embassy to Thibet. 4to. 1806.
Rev. F. W. Hope	Van der Linden, Monographiæ Libellulinarum Europæarum Specimen. 8vo. 1825.
J. Van Voorst	Catalogue of British Vertebrated Animals.
Rev. F. W. Hope	Anonymous. Voyage de l'Afrique.
Ditto	——— Voyage to China and the East Indies. 2 vols.
Ditto	——— Voyage à l'Isle de France.
Ditto	——— Voyage to the East Indies. 1 vol. 4to.
The Author	Walker, List of Chalcidideous Hymenoptera in the Collection of the British Museum. 12mo.
Rev. F. W. Hope	Watken's Voyage to Madras. 1 vol. 8vo.
The Author	White (A.), Descriptions of New Coleoptera and Hymenoptera from China, &c.
Ditto	——— Entomological Notices, from Annals of Natural History.
Rev. F. W. Hope	Withering's Botany. 3 vols. 8vo. 1787.
The Society	Zoological Society, Transactions. Vol. 3, Parts 2 and 3.
Ditto	——— Proceedings for 1843—1846.
Ditto	——— Report of Council for 1843—1846.
Rev. F. W. Hope	Portrait of Bonelli.
Ditto	Two Glazed Book Cases.
Ditto	A Large Rolling Map of the World, fixed in the Meeting Room of the Society.
Ditto	A Glazed and Framed Portrait of Linnæus, placed over the President's Chair in the Meeting Room. (Presented on the 5th May, 1845, whereupon it was resolved that an especial vote of thanks should be given to the Donor for the numerous and valuable presents made by him to the Society.)

ADDITIONS TO THE COLLECTIONS

FROM THE 1st JANUARY, 1844, TO THE 31st DECEMBER, 1846.

A large Box of British *Crustacea*	Rev. F. W. Hope.
Various *Crustacea* from New Zealand and Swan River	Ditto.
Fifty-four Bottles containing Insects and Larvæ in Spirits	Ditto.
A Box of Insects from Naples	Ditto.
A series of Specimens and Casts of *Trilobites*	Ditto.
A number of Insects in Spirits from Florence and Pisa	W. C. Trevelyan, Esq.
A Specimen of Honey-comb, with a Queen Bee's Cell, constructed out of a Neuter Cell	Rob. Golding, Esq.
A Box of *Coleoptera* from Cape Palmas, presented through the Rev. F. W. Hope	Rev. T. Savage.
Specimens of *Crustacea*, from the Pacific Ocean	Rev. F. W. Hope.
A Specimen of *Pseudopsis sulcatus*	A. H. Haliday, Esq.
Specimens of *Arpedium subpubescens*	Ditto.
Specimens of *Pelophila Borealis* and of various minute Diptera and Hymenoptera	Ditto.

THE
AUTO-BIOGRAPHY
OF
JOHN CHRISTIAN FABRICIUS,
Translated from the Danish,

WITH ADDITIONAL NOTES AND OBSERVATIONS,

BY

THE REV. F. W. HOPE, A.M., F.R.S.,

PRESIDENT OF THE ENTOMOLOGICAL SOCIETY.*

I WAS born in Tondern, in the dukedom of Schleswig, on the 7th of January, 1745. My father, John Christian Fabricius, was the physician appointed by government for that city and its county; my mother's name was Anne Henningsen; an elder brother and myself were the only children they had. My father educated us in a spirit of liberality and freedom which was uncommon in those days. He gave us small horses and guns as soon as we were able to mount a horse and fire a gun. He himself taught us both to play cricket and ninepins, as well as many other games, and it was his great desire that we should have constant exercise, particularly in the open air. To this continued activity in early life I may possibly ascribe my strong constitution and capability of enduring bodily fatigue. In the year 1754, he inoculated us (which proved very successful), which is only remarkable, as we were the first

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* Meeting by accident with a portrait and biography of Fabricius in the Danish language, I compared it with Monsieur Latreille's biographical notice, published in the 11th volume of the Annales du Museum, and as there are some inaccuracies in the latter work (for instance, Latreille's giving the date of his birth in 1742, whilst the former work mentions 1745), I thought it right to examine the life more closely, and having translated it, now present it to the reader in an English dress with the portrait of Fabricius, copied from one engraved by G. L. Lahde, court engraver at Copenhagen. The only notice of the above illustrious entomologist, to be found in the English works of my acquaintance, occurs in Mr. Swainson's Taxidermy, published in 1840. He appears to have copied some of the errors of Latreille, and, at the conclusion of his remarks, asserts that if Fabricius wrote his own biography, it has unfortunately never been published; the life now produced is, I think, that alluded to by Latreille, and therefore he was right in his intimation and Mr. Swainson wrong; both of the memoirs, however, are well worthy of perusal, and it is highly gratifying to find the naturalists of the two rival countries united in one common object, that of honouring the memory of the celebrated Fabricius.—*F. W. H.*

(if not in the whole country, at least) in the dukedom on whom inoculation was tried. My father not only bestowed pains on our physical education, but also on the instruction of our minds. He always kept a tutor for us, to whom, especially the last (the present pastor Thomsen, in Sorup), we are indebted for our moral culture. We also obtained as much instruction in drawing, dancing and music as circumstances, in so small a town as Tondern, would permit. On me all this methodical instruction was lost. My volatile disposition had no taste for the dry study of languages and circumscribed manner of teaching; but I found in my father's library, which was not small, and to which we had free access, an old herbarium in four volumes, which he had collected in his youth and in which Tournefort's botanical names were inscribed. He allowed us to do with them whatever we pleased. We cut out the plants, and it gave us no small pleasure when we were able to define one or other of them according to the "Species Plantarum" of Linnæus. We also collected plants and insects in the neighbourhood, and we studied the "Species Plantarum" and "Philosophia Botanica" far more diligently than Cornelius Nepos or Cicero. I also found pleasure in reading, and when I was fourteen or fifteen years old I made an extensive analysis of Pontoppidan's Natural History of Norway, a work which I at that time highly esteemed. In the year 1761, as my father was appointed physician to Frederick's Hospital in Copenhagen, he sent me to the high school at Altona to be prepared for college. There Professor Profe was my teacher in the elements of practical mathematics, and Mr. Henrici in Latin composition. In the year 1762, I went to Copenhagen, where I was received as a fellow of the college of students. In the autumn of the same year my good father granted me the fervent desire of my heart, and sent me, accompanied by Mr. Zoega, to Upsal. I remained there two years; this was the most important period of my life, in which the foundation of my "*future destiny appears to have been laid*," as well as the bias of my mind. I always look back to that period with great delight and warm feelings of gratitude towards my great master, Linnæus, who was to us like a father, and it was quite *natural*, from the high regard which we had for his merits and the great freedom and unreservedness which he permitted in our intercourse with him, that our young hearts should be warmly and fervently attached to him. We saw and heard him only. In winter we lived in town close by him, and in the summer we followed him into the country that we might the more freely enjoy the benefit of his instruction and intercourse. We and the American Kuhn were the only foreigners (the Russians excepted), and the zeal with which we pursued *his* science, united to the gratitude wherewith we received his instructions, pleased him very much. It was our intention also to have attended the lectures of Wallerius on Mineralogy and Chemistry, but it was not fulfilled, not because his lectures were not useful, but because he was not on friendly terms with Linnæus. Linnæus never uttered to us a word against Wallerius, but as we had read his writings against Linnæus, we of our own accord gave the above proof that we for his sake alone had come to Upsal. Linnæus in his lectures understood the art of encouraging youth in the study of science, and in his intercourse and conversation he was inexhaustible in all kinds of anecdotes and observations. He visited us daily both in the country and in town, and enriched our minds during several hours of delightful instruction, which was to him a recreation while speaking to us on his favourite science, botany. He properly laid the foundation of our knowledge, and imprinted on our minds the systematic order with which the study of the sciences ought to be pursued, and that accuracy of expression which so peculiarly distinguishes the Linnæan school;—Zoega devoted himself to the study of the various kinds of mosses, *I* to that of insects, and Linnæus always rejoiced when we brought him anything new, or when he could communicate to us some new information on those subjects. Revered and cherished will his memory ever be by me.

In Upsal I also formed a friendship with the pupils of Linnæus, who were there at that time, namely, Thunberg, Falk, Ferber and others. In the year 1764, I returned to Copenhagen, where I remained during the winter. Here I had friendly intercourse, particularly with Professor Oeder, an apothecary, with Mr. Cappel, and other persons who lived with us in the hospital. I did not regularly attend any lectures that winter, but I laid the first foundation of my "Systema Insectorum;" I compiled the "Genera Insectorum" in accordance with the small collection which I then possessed, and I was also so fortunate as to be enabled, through the kindness of Ascanius, to investigate and determine the insects after Forskaal. I established the Orismology of Entomology, introduced stable genera, and endeavoured to identify species without the aid of colours, an experiment which I afterwards, with a much greater number of insects, was obliged to abandon. My revered father, who was too good either to disturb me in my labours (which I with great zeal had engaged in), or to insist on my in any way following out his ideas, was however not without anxiety with regard to my future preferment and prosperity. He endeavoured therefore, at this period, to obtain the promise of Count Moltke of an appointment (as Professor of Œconomics at the Natural History Theatre of Charlottenburg*) which was still vacant after the death of Holms, but did not succeed. In the year 1765, I went to Leipsig to hear the lectures of Professor Schreber on Œconomics, which was to be my proper department. My brother went at the same time to Leyden, where Siegfried Albin was at that time teaching anatomy with great eclat. I must here remark that although our father was not rich, he never allowed us on our travels to be in want of money. We had everywhere open letters of credit and in reality spent not a little, but notwithstanding his circumstances, he never would ask for any kind of assistance or stipend for his sons, which scarcely could have been refused to an individual who was so highly esteemed and beloved in Copenhagen.

Professor Schreber lectured on Œconomics after Dithmar's first principles. I attended diligently and profitably, although the arrangement was on the whole only approved of by few. I also entered into a friendship with his son, the present Hofraad Schreber in Erlangen, and joined with pleasure in his botanical excursions. I did not attend any other lectures, but was zealously engaged with my Entomologia, and in collecting the plants and insects of the neighbourhood; I also obtained some from the Waltherste garden and the collection of Mr. Schreber, who afterwards presented me with his entire collection of insects. In the evenings I went to the theatre or visited Professor Ludwig, although I could gather from our botanical conversation that he did not approve of my being so warm an adherent of Linnæus. In the vacation, at the time of the Leipsig fair, I visited Freyberg and Dresden. In Dresden, I made an acquaintance with the Inspector of the Natural History Cabinet of the Elector, and Mr. Birchhahn, who possessed a most extraordinary tact of discerning different minerals, merely from their external appearance. He invited me to take up my abode with him the following summer, when he would instruct me how to know the different minerals from the specimens, and also take me to the Saxon Erz Mountains. I thankfully accepted his offer; and thus I visited in his company, almost every day, the collections, and travelled with him almost to every one of the Saxon mining districts. I thereby acquired a tolerably acute eye, and a remarkable quickness, by the outward inspection of the minerals, of discerning with exactness their different kinds; this knowledge, however, was limited to those species of which I had an opportunity of seeing specimens, but my acquirement was by no means systematic. He also procured for me a considerable collection of Saxon minerals, especially the different kinds of cobalt, which I sent to Copenhagen. In the autumn of 1766, I went to Leyden, where I heard the lectures of Gaubius on Chemistry and those of Allemand on Natural Philosophy. I was diligently occupied in visiting the collections of Gronovius and Allemand, to which I had entrance at all times; I also went to Amsterdam, the Hague and Delft, where I examined and described the several collections of insects to which I was able to obtain access. In Leyden I also began to arrange my œconomical remarks, and made here the first sketch of my intended lectures on the first principles of the œconomical sciences, that I might have a fixed method into which I could introduce my further remarks. In the spring of the year 1767, I went by sea from Amsterdam to Edinburgh, where I again found my brother, who was esteemed by his teachers and favoured by the inhabitants of that city. He introduced me to the heroes of medical science, and he soon procured me the important acquaintance of Cullen, Gregory, Young and Hope, with whom we spent many evenings in scientific conversation; I did not however remain long in Edinburgh, but as soon as I had in some degree acquired the language, I bought myself a horse and travelled with Dr. De la Roche through the Highlands of Scotland. The letters of introduction which we received from Edinburgh procured us everywhere a kind reception; we visited many different parts of the country and saw all that was remarkable; we gathered plants and insects, and of all of them I kept a very particular journal. In the month of August we returned to Edinburgh, where my brother meanwhile had taken his degree, and in the beginning of September we went in company with him on horseback through the western parts of England to London. We were provided with letters of introduction and with addresses to persons in every town. We visited the Scottish lead mines at Leadhills, Whitehaven and the coal mines in that locality, Liverpool, Bath, Derby, Oxford, and all the different spots about those places, and I continued my journal which I had commenced in Scotland. At the end of the month of November we at last arrived in London, where we sold our horses, however with some loss. In London I had the good fortune, immediately after our arrival, to form an intimate acquaintance with Dr. Solander. The science which we cultivated,—our unanimity of thought with regard to it, as we both were of the same school,—our mutual teacher,—our mutual friends in Upsal, of whom we could converse,—all served to form bonds of union. Solander was at that time located at the British Museum. As a learned man he was respected and liked in society for his wit and cheerfulness. In the forenoon we were daily engaged in the Museum; we dined together, and passed our evenings in a cheerful circle of acquaintances. To him I am indebted as well for the benefit as the pleasure I enjoyed during my stay in England. He introduced me to the scientific clubs, and procured me acquaintance and connection with all the learned persons in our department, viz. Banks, the two Hunters, Fordyce, Lee, Drury, Lady Ann Monson, Eaton, Fothergil, Webb, Ellis, Pennant, Greville, and many others, whose houses and libraries and collections were soon opened to me. I determined and described the insects, and arranged the species of the collections. My "System of Insects" gained ground considerably, as well by the more exact definition of the species, as by the addition of a considerable number of genera. My collections of insects were greatly increased; I sent them to Copenhagen, where Zoega arranged and preserved them. In January, 1768, my father, through the assistance of Mr. Schumacher, (who was then secretary of the cabinet,) procured for me the Professorship of Economy of the Natural History Theatre of Charlottenburg, with the permission that I might still travel two years more. I could not, according to the arrangement at that period, have desired a more agreeable place, but I never obtained the actual possession of it. The above appointment was very pleasing to me on account of my revered father, whom it delighted much, and also comforted in regard to my future prospects.

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* Probably, as we should say in England, "Professor of Natural History and Rural Œconomy."

The greatest part of the year 1768 I remained in London. In the month of June Mr. Banks and Dr. Solander went on their expedition round the earth with Captain Cook; it made London appear to me as if it were empty. In the spring, as long as the ship remained in the Thames, we visited it frequently to arrange all things for the best, and in the most convenient manner. At the end of the year, although unwillingly, I at last left London and went to Paris; but I had become too much of an Englishman to be able to relish France, much less Paris. I was, however, received with great kindness by Geoffroy, (well known for his "Histoire des Insectes autour de Paris,") as well as by Duhamel de Monceau, D'Aubenton, Jussieu, Thouin and Guettard. I also described at the house of Mandouet some insects from Cayenne, which were quite new to me; still I was inconsiderate enough to despise every thing because it was not English. My foolish discontent increased daily; and as I from my childhood had been accustomed to indulge my fancies, I left Paris as early as December, and travelled by Lyons, Nismes, Montpellier, Marseilles, Antibes, to Italy; and then proceeded by Nice, Cone, Turin, Milan, Verona and Padua, to Venice. On this journey also I noted down every thing which appeared to me worthy of remark. Although, owing to our tour being suddenly determined on, I obtained no letters of introduction, I yet formed many interesting acquaintances. In Nismes I met with Seguier, and more particularly at Turin the celebrated naturalist Allioni, who not only received me in the most friendly manner, but also continued to afford me many tokens of kindness; and it is to him especially that I am indebted for my acquaintance with the Italian Fauna and Flora. At Padua I became acquainted with Marsegli, Vallisneri and Arduini; and in Venice with the family of Mozenigo, with Fortis and others; I also visited various manufactories and institutions for which Venice is so very remarkable. From Venice I made a short trip to Bologna, to examine the Aldrovandine Collection, and although I there formed an acquaintance with Bassi and Monti, I did not remain long in Italy. Very early in the spring I went by Laybach to Idria, partly to see the quicksilver mines which are there, and partly to get acquainted with Scopoli, who at that time was one of the first entomologists living. From Idria I crossed the Tyrolean mountains, visited Inspruck, Halle, Swatz, and passed through Munich, Regensburg and Stutgard, to Tubingen. At this place I remained some time with my academical friend Dr. Plouquet; and made from thence an excursion on horseback through the mountainous districts of Wurtenburg and Furstenburg, where I collected many minerals.

From Tubingen I travelled through part of Switzerland to Strasburg, formed many new acquaintances, admired the splendid scenery, and visited some fine collections. I was very well received at Strasburg, and formed an intimacy with Spielman, Herman, Ehrman, and Major Dietrichs (who afterwards was so unfortunate), and with other learned men in my department. After remaining some weeks there, I travelled by Zweybrucken Meissenheim, the Saxon Hartz mountains, to Hamburgh, and returned at last, at the end of autumn, to Copenhagen.

I entertained the hope immediately on my return of entering on my professorship, and of taking possession of the dwelling of Charlottenburg, which had been allotted me as my appointment, but I was disappointed. Circumstances had greatly altered,—Struensee had adopted a principle (which in itself is right enough), that everything pertaining to education and instruction should be united with the academy. Bishop Gunnerus was summoned to Copenhagen to make new regulations for the academy, where I also was to have had an appointment. In the summer of 1779, I travelled through the dukedoms of Schleswig and Holstein, and kept an accurate journal of all that was worthy of observation; for I thought that, as public teacher of Economy, I ought especially to have a thorough knowledge of my native country. In the winter after my return I commenced lectures on the science of political economy. My lectures gained considerable approbation, but my hearers were few. In the summer of 1771, in consequence of an order from the government, the Natural History Theatre of Charlottenburg was entirely abolished. Peder took the department of finance, Ascanius had the mining district of Norway, both with considerable increase of salary; and to me it was stated that (by the new regulations of the academy) I should be so provided for that I should be perfectly satisfied. Gunnerus, who was acquainted with and loved natural history, desired my welfare. He once proposed to me to appoint me to the academy which he hoped to institute in Norway; and as soon as he was obliged to abandon that project, he recommended me to a similar situation, when the new regulations in Copenhagen were to take place, giving me the assurance of having every reason to be pleased therewith. But these proposed alterations in the Academy of Copenhagen were never accomplished. The 17th of January put an end to my hopes; Gunnerus returned to Drontheim, the academy remained as it was, and I was there appointed as professor extraordinary, with 400 rix dollars as a salary. In 1772 I published my first work, namely, "Anfangsgrunde der Œconomischen Wissenschaften, zum Gebrauch Academischer Vorlesungen."* In 1784 a second edition was published, with additions and improvements. It answers its intention, and contains in a systematic order merely concise principles, which a teacher in his lectures has sufficient opportunity of dilating on. From 1772 to 1775 I spent the winters in Copenhagen, and the summers in London. My friends Mr. Banks and Dr. Solander had returned from their voyage round the world, and had brought with them innumerable specimens of natural history and insects. I now lived very pleasantly. With Banks, Hunter and Drury, I found plenty of objects to engage my time, and every thing which could possibly be of service to me. My situation was not only very delightful, but it afforded the means of gaining much instruction. In 1775, at Easter, during the great fair at Leipsig, my "Systema Entomologiæ" appeared. Entomology was at that period in its infancy. We had then only the Systema of Linnæus, whose classification, derived from the wings of insects, was not the most natural, and his species were very imperfectly defined. Moreover, it contained but few species, as the great founder of that system was fully aware that the science would make little progress by a compilation of an inadequate number of species; the amount of genera also described by him was not great. In my System I made use of the organs of manducation as marks of distinction for my classes and species, and in spite of all its faults, which arose from the smallness of those parts, my classes were far more natural, my species were more numerous and more ably defined, and the number of described genera considerably greater. I at the same time extended the Orismology, fixed its significations with greater accuracy, and introduced the concise language of the Linnæan school in this department of natural history.

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* "Elements of the Economical Sciences, for the use of Academical Lectures."

It soon obtained approbation in spite of all the objections made to it with regard to the smallness of those organs, and the greater part of the entomologists of Europe followed my system. In this year my situation was entirely changed,—I had the misfortune to lose my revered father whilst I was in London, who had always kindly assisted me. In the year 1771 I had married the daughter of Cancellieraad Ambrosius of Flensborg, and had two sons. I soon became aware that the little I inherited, added to my small salary, was not sufficient to maintain me in Copenhagen, and I found myself compelled (although unwillingly) to accept an offer made me by Ganzler Cramer, of the Professorship of Natural History, Economy and Finance, at Kiel, with a salary of 650 rix dollars.

The curator and the tutors of the academy, as well as the inhabitants of the city, received me with kindness and regard, and I soon gained the affection and friendship of the students. Although I found myself pleasantly situated, I soon perceived that all means for the furtherance of my favourite science were wanting. A promise was given me on my appointment that a collection should be commenced under my inspection, and also a garden, but the state of the finances of the academy prevented it. I was therefore limited to my collections; and as the library in my department was very poor, I should soon have retrograded in entomology if I had not recommenced travelling. In 1776, I published the "Genera Insectorum," which contained the natural definitions of the species; and in 1778 the "Philosophia Entomologica," in which

I endeavoured to determine the theoretical principles of entomology with greater accuracy. Both of them have now, by the great increase of science, become very incomplete, and require many additions. In the summer of 1778 I joined company with Professor Weber in a tour to Norway. To meet the expenses of the journey the government gave me 200 rix dollors. That gave rise to the publication of the "Reise nach Norwegen," which made its appearance in 1779. Although it is translated into the Danish, Dutch and French languages, and was also reprinted at Nuremberg, I am fully aware that it is both incorrect and incomplete, and must of necessity be so,—as the time was limited, the means of assistance small, and the weather very unfavourable. I should scarcely have determined on publishing it had I not considered it as a duty due for the assistance (limited as it was) which I had received for the journey. In 1780 I again went to England, where the different collections had been considerably enriched since my last sojourn there. On this journey I wrote, during my leisure hours, the little volume entitled "Ueber die Volksvermehrung, insonderheit in Danemark,"* which appeared in press in 1781. It contained a further developement of the concise principles which I had published in a chapter of my "Elements of the Economic Sciences,"† in which manner I have also developed others in my "Policey Schriften." It caused a great sensation, and the edition was sold off in a very short time, as it was written with great candour, and treated of matters without respect of persons. There appeared against it two controversial attacks; that by Etatsraad Brunn, of Slesvig, I cared little about, it did not deserve an answer; but the other, by Stiftamtmand Œder, affected me greatly. His animadversions are written with a bitterness which, considering the estimation in which I held his merits, and also the friendly intercourse which for so many years had existed between us, were painful to me in the highest degree. Misled by his passions, he regarded a passage in my work as a personal offence, which it neither was nor could be. I did not answer it, although there were those who were acquainted with the circumstances of the time when Œder became professor; they knew well what might have been said.

In the same year I published my "Contemplations on the Economy of Nature;"‡ they are certainly incomplete, and in some parts perhaps also incorrect, and only contain a further developement of the laws of nature, such as I had previously published in the "Kieler Beytrage."*

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* "On the Increase of Population, particularly in relation to Denmark."

† "Anfangsgrunde der Econom. Wissenschaften."

‡ "Betrachtungen über die Enrichtungen der Natur."

In 1782, the "Species Insectorum" appeared in two volumes as a continuation of the "Systema." As there was at that period a prospect of my getting an appointment in England, and I, in consequence of the increase of my family, found my salary insufficient, I requested my dismissal. That proceeding caused the government to add annually to my stipend 200 rix dollars, and thus I had per annum 850 rix dollars, so I remained, but in the summer I made a tour to England. In 1783 I published my "Letters on England, and on Education, especially in relation to Denmark."† As they were published by a society termed "Buchhandlung der Gelehrten," which existed only for a short time, these publications have not become much known, and perhaps they did not deserve to be so. In 1784 appeared "The Culture of Plants,"‡ under the title of "Sanders's Natural History for Country People;"§ it contains short theoretical rules for a nursery and for the culture of plants, in such a simple style that it may be beneficial to the common people. In the summer I travelled with my wife and daughter through most of the provinces of Germany to Vienna. The principal object of this tour was to form an acquaintance with the authors of the "Catalogue of the Lepidoptera of the Vicinity of Vienna,"‖ and inspect the collections; they were to me highly important. On the way thither I visited Leipsig, Dresden and Prague, where I revived some old acquaintances and formed new friendships. At Vienna I became acquainted with Denis, Poda, and many other learned men in my department. The principal author of the above Catalogue was Schiefermuller, whom the Emperor Joseph (after the abolition of the Theresian Institution), had appointed director of the Northern Institute at Lenz, to which place he had removed the cabinets; I therefore went there and remained with him about three weeks, in which time I examined his entire collection and described the insects according to my system. In the autumn I returned by Nuremberg, Erlangen, Heidelberg, Manheim, Francfort, Cassell and Gottingen. In the Historical Portfolio of 1785 I have inserted some letters on Vienna relating to this journey.

The Kiel Miscellany, or Contributions."

Briefe über England und über die Erziehung, besonders in Danmark."

Cultur de Gewachse."

Sander's Naturgeschichte für Landleute," 3ter Theil.

Verzeichniss der Schmetterlinge der Weiner Gegend."

In 1785 the first volume of my writings on Political Economy appeared; it contains an ample exposition of several chapters of my "Elements of the Œconomic Sciences." This work, although it was written with as great, nay, with greater freedom than that on the increase of population, caused less stir; the people had now become more accustomed to the liberty of the press. In 1786 I went by water to Petersburg. hoping here to increase my knowledge from visiting the collections of the many scientific men who had travelled through the Russian provinces, but I found much less than I expected. I was however very kindly received by the Princess Daschkow, at that time the president of the academy, also by Pallas, Euler, Georgi and Rennovanz. I also there formed an acquaintance with Boeber, which was very agreeable to me; he presented me with many insects, and I profited much by his conversation; but in other respects found very little interesting at St. Petersburg in my pursuit. In addition to the above disappointment, the cold and wet weather which occurred that summer (in a climate always raw and damp), added to the violent effects which the waters of the Neva produced on me, rendered me, for the first time during my travels, not exactly ill, but indisposed; that clear, pure and beautiful water of the Neva, which the inhabitants of Petersburg, who are accustomed to it, value so highly, caused me much of the time I remained there sickness and diarrhœa, which at length terminated. I imagine the cause of this violent attack may be attributed to the total want of fixed air in the water, as from the many kinds of water which I had drunk I never experienced any similar inconvenience; such effect is altogether the reverse of mineral wells. I returned to Copenhagen, and my Letters on Petersburg, published in the Historical Portfolio of 1787, were the fruits of this tour. In 1787 I published the "Mantissa Insectorum" in two volumes, which contained more particularly the corrections and additions which I obtained on my travels to Vienna and Petersburg. In the summer I again went with all my family to England. There Colonel Cathcart made a proposition that I should accompany him to the East Indies on very advantageous terms; he had been ordered by Government to visit all the English colonies in the East Indies, and examine their products, with a view to the promotion of manufactures and commerce; as he did not possess any knowledge of natural history, he proposed to take me with him as physiologist. It might have been a profitable voyage. Everything that I could desire was granted, but as it was a long and uncertain expedition, I thought it right, in case I did not return, that some provision should be made for my wife and children; an objection was made, that the Board of Control would remonstrate against such a claim, as the appointment was properly a place for an unmarried man, and the expenses would fall on the East India Company. Without a prospect of my family being provided for, I could not properly leave them, and I therefore abandoned the undertaking. Cathcart, on his part, was offended; he took no naturalist with him; he sailed in the frigate Venus, died, and was buried in the Straits of Sunda, and the frigate returned after a fruitless voyage. In 1788 the second part of my writings on Political Œconomy appeared, in which, as in the first part, several chapters of my Elements are farther developed. In 1789, as I conceived I was unjustly treated, I demanded my dismissal from the Academy, which, after some hesitation, was granted me, with a pension of 400 rix dollars. It was my intention first to make a journey to France and then settle in England. But the students, out of esteem and affection for me, unanimously presented a petition to government, requesting they might be allowed to retain their teacher, and for the same purpose applied to me; thus I was persuaded to return the letter of dismissal which had been granted, especially as assurance was privately given me that no injustice was intended, and that at the earliest opportunity they would make amends for my disappointment, which, however, was never fulfilled. In 1790 I travelled with my wife and daughter to Paris, partly because I knew, from intelligence sent me by Olivier, that the Parisian Cabinets contained a considerable number of insects with which I was unacquainted, and partly because I wished to be fully informed respecting the new order of things which had been introduced by the Revolution. I was received with distinguished attention and friendship. Desfontaines, Jussieu, Bosc, Parmentier, Riche, Sylvestre, Fourcroy, Brongniart, Olivier, Thouin, Billardiere, Broussonet, and others, opened to me all their collections, and by their friendship and kindness contributed much to make my residence there both agreeable and instructive. I moreover formed an intimate acquaintance with some of the leaders of the Revolution, especially with the family of Roland, afterwards so very unfortunate, and also with Gregoire Millen and others. I often attended both the National Assembly and the Jacobin Club, and witnessed nearly all the scenes of the Revolution which took place. On the whole, my residence at Paris was interesting to me. At Midsummer, 1791, I returned by England to Kiel, but went almost immediately afterwards to Copenhagen with the hope of having my daughter cured. On the Pont Neuf in Paris she had a fall, and hurt one of her knees, which occasioned a white swelling. No medical aid could avail; after suffering for two years she died. Our dear child carried with her to the grave much of our temporal happiness. Sweetly may her ashes rest!

In 1792 I endeavoured to obtain the superintendence of the nursery garden at Dusterbrock. That situation, which had become vacant by the death of the excellent Herschfeld, would have compensated me for the want of an economical garden, but I did not gain it. From 1792 to 1794 appeared the "Entomologia Systematica" in six volumes; it is a further exposition, augmentation and improvement of the "Systema Entomologia." In 1794, I found myself obliged, on account of my wife's health, to leave Kiel and take a journey to Switzerland; whilst nursing her sick daughter she had withdrawn from all society, and had suffered exceedingly both during her illness and at her death; I knew no better method of cheering her. We went by Jena, where both our sons were studying, thence by Coburg and Bamberg to Erlangen, where we spent some delightful days with Schreber. We proceeded then by Nurnberg, Augsburg, Lindau and St. Gallen, to Winterthur, where the hospitality of our dear friends, Clairville and his lady, detained us some weeks. There I formed an acquaintance with Dr. Sulzer, Ziegler, Schellenberg and others. From Winterthur we went to Zurich, and from thence proceeded on foot by Zug, Lucerne, and through the republican cantons, and back again to Zurich; afterwards we journeyed along the Rhine, by Francfort, Cassel, and at the close of the year we again arrived at Kiel. In 1796 my treatise on "Academics" appeared, which is also a farther exposition of the subject mentioned in the "Elements." In the same year I took my wife to Paris, as the place where she had lost her dear child reminded her too often and too forcibly of her loss. I was received with the same friendly feelings, renewed my old acquaintances and contracted new ones, amongst whom I regard the Director Reveilliere Lepeaux and Professor Cuvier as the most important. In the autumn I returned alone to Kiel. In 1797 I again visited my wife in Paris, resided there some agreeable months, as both of our sons also had arrived from Vienna to pursue their medical studies. In the autumn I returned alone to Kiel. In 1798 I published a supplementary volume to the "Entomologia Systematica," with additions and improvements, and then went again to Paris. Besides the above-mentioned works I have written also several small tracts, which have appeared in the transactions of several scientific societies, but I regard them as of little importance;—they seldom contain anything novel and are generally diffuse; many of them consist of descriptions of genera and species of insects, and are afterwards introduced in my other entomological works. There are only two which contain matters really new, namely, the tra[illegible] on the "Sickness of Plants," which is published in the Transactions of the Society of Science at Drontheim, and the treatise on "The Organs of Hearing in Insects," the last appeared in the Transactions of the Society of Science of Copenhagen. In consequence of the small tracts of mine which have appeared in the Magazine of Kiel under the titles of "Lob der Leibeigenschaft," "Ankundigung einer Geschichte Friderich des 5ten," "Og Danmarks Finants- und Schulden-Wesen,"* I have often been attacked; they contain, however, several truths. I have become a member of different scientific societies, and on the title-page of my Supplement I have stated them all, so I need not here mention them, as I do not now remember the exact date at which I was appointed to each one in particular.

From the year 1798 to 1804 I went in the spring to Copenhagen, purposely to describe the many new insects which my particular friends and former pupils, Chamberlain, Sehested, and Etatsraad Tonder Lund, in their real zeal for science had collected. Their kind friendship allowed me full liberty in examining and describing them. It is the richest collection of the kind with which I am acquainted, and from it were derived an extraordinary number of new genera, which eventually induced me to treat every class as a whole. This was the origin of my "Systema Eleutheratorum" in two volumes, and also of the "Ryngotorum" and "Piezatorum," each in one volume, which were published at this period. In the summer I went every year to Paris in order that I might see the large collections which Olivier had brought from Persia and the East, Bauden from the South Sea, and those which other persons brought from Egypt; and this summer I expect the excellent Humboldt to return from South America. In the winter I always remained at Kiel to fulfil my duties to the Academy, and give lectures on Natural History and Œconomics. Oppressed by the infirmities of approaching age, and annoyed by several unpleasant circumstances in my academical situation, I wished to conclude my academical career, as I have been lecturer from the year 1768. The continual repetition of the elements has become wearisome to me; and although senior of the Philosophical Faculty and subsenior of the academy, I have seen most of my colleagues preferred before me in respect to salary. I have never been able to obtain from the academy the smallest assistance for the promotion of my favourite science, though it has so often been promised me, especially on my removal to Kiel. By the economical arrangement of my household affairs I have been enabled to meet the various expenses attending my writings, and also the education of my sons. It has at times certainly been difficult to do so. I have however never found it necessary to apply to the Copenhagen University to obtain such a stipend for the education of my children, which as having been a teacher there I might have laid claim to. Stipends are alms: and although my children from their infancy have had their names entered there, I have never wished to deprive such persons as had more need of it. I have now also sent to the press "The Results of my Lectures on Natural History,"* to point out the way in which I have treated of that science. With regard to Œconomy, that has been sufficiently made known in my work entitled "Elements of the Œconomical Sciences."

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* On the Finance and Debts of Denmark.

Such was my life, cherished by my countrymen, although some of the higher ranks took offence at my writings on politics. Beloved by the learned abroad, I met on my travels everywhere with the most friendly reception. A healthy body, a light heart, and an easy mind, raised me above many troubles. Continual employment in my favourite science, which is itself inexhaustible, but which I cultivated with great pleasure, and not without success, kept up my ardour in the pursuit, and diffused peace and happiness over the whole course of my life.

J. C. FABRICIUS,
Professor of the University of Kiel.

In concluding this memoir on the illustrious Fabricius I have now the satisfaction in offering to the Society a portrait of that learned individual; it is copied by Mr. Spry from an authentic one, and does justice to the likeness, which can readily be seen even by an inexperienced person. If it is thought worthy of being added to our Transactions it can be appended to some future number. The stone also is perfectly at the service of the Society. I regret to state that some interesting communications relating to the family of Fabricius have not yet reached me from Copenhagen. Should they not arrive before this memoir goes to press, they will at a future time be forwarded to the Society.

F. W. H.

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* "Resultate meiner naturhistorischen Vorlesungen."

Some brief Notices of deceased Neapolitan Entomologists. Communicated by SIGNOR O. G. COSTA, *of Naples, and translated by the* Rev. F. W. HOPE, F.R.S., &c. &c.

1. DOMINIQUE CIRILLO.

DOMINIQUE CIRILLO, a physician, was at first, professor of botany and afterwards of theoretic medicine at the university of Naples. He was the first person who studied insects in this city, and he conceived the idea of publishing in a series of figures all the new species or most rare insects of this country. He had pupils who aided him greatly in collecting, and sent him insects from other parts of the kingdom. The engravings which accompany the work were drawn by himself. It was not till the year 1787 that the first number made its appearance, under the title of "Specimen Entomologiæ Neapolitanæ." It consisted of twenty-four engraved folio plates, twelve of text and twelve of figures. He worked diligently in the Entomological department of this country, and he not only noted the particular localities in which species lived, but also the months in which they were found. Sometimes he specified the plants on which they fed, and other peculiarities. Unfortunately we have reason to lament that this work was at its commencement stopped, and even of the only number published there were so few copies that it is now impossible to procure it. He fell a victim to the politics of 1799,* in which he was engaged.†

2. VINCENT PETAGNA.

Vincent Petagna was professor of botany at the university of Naples, after Cirillo had succeeded to the chair of Theoretic Medicine. He was a member of the Royal Academy of Sciences, a physician and a distinguished botanist, and commenced studying insects from a spirit of emulation towards Cirillo, of whom he was a rival. In the year 1783, having in his possession insects collected in Calabria by two young men, Julio Candida and Joseph Stephanelli, and also all the Entomological observations they had made, he composed a work which he published in 1786 under the title of "Specimen Insectorum ulterioris Calabriæ," in quarto, with a single plate. This work is interesting, as being the first publication which has made us acquainted with the southern parts of the kingdom of Naples, as far as regards insects. Afterwards he commenced writing the "Institutiones Entomologiæ," which he published in two volumes, octavo, with ten plates, in 1792.

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* Not in the year 1796 as Mr. Swainson asserts in his Taxidermy, published in 1840. Vid. page 162 (O. G. Costa).

† Besides the "Specimen Ent. Neapolitanæ," Cirillo has published some memoirs on botany and medicine.

Petagna took much interest in diffusing a taste for Entomology, but unhappily he did not succeed. After his death none of his pupils occupied themselves with Entomology, the probable cause of which was the want of access to public and private collections, and the ignorance of the proper methods of preserving insects.*

3. Louis Petagna.

Louis Petagna, a physician, was son of Vincent Petagna. He was professor of Zoology at Naples, and a member of the Royal Academy of Sciences. He possessed not the same zeal for Entomology as his father. He only gave to the academy a memoir, containing descriptions of two and twenty species of Neapolitan Insects which he supposed unknown; unfortunately several of them were already described, and others cannot be known in consequence of their brief descriptions and the ambiguity of the figures, which are not alluded to in the text: notwithstanding these defects we find there a description and figure of a *Chrysomela*, which has recently been named *melanostigma*† by Kollar, and *sicula* by De Jean; it ought to retain Petagna's name *variolosa*. He died in the year 1832, whilst returning home from a journey made to Vienna with Professor Costa, for the purpose of investigating the cholera morbus, by order of the Neapolitan government.

4. Vincent Briganti.

Vincent Briganti was a physician and "Professeur de Matière Medicale demonstrative" to the University of Naples, and a member of the Royal Academy of Sciences. He cultivated botany with success, in which department he made some interesting researches. He left behind him also some Zoological memoirs which are by no means contemptible, such for instance:—1. Descrizione delle Ligole che abitano nel l'addome de' Ciprine del Lago di Palo. Vid. Actes de l'Academ. Roy. des Scien., vol. i. 2. De novo Vermium Intestinalium genere cui nomen Balanophorus. Ibid. vol. ii. part 2. 3. Descrizione di due nuove Specie di Elici (Helix setulosa and H. straminea.) Ibidem. 4. Descrizione della struttura, mutazioni, vita e costumi della mosca che fora le ulive, con appendice su taluni altri insetti infesti a varie parti dello stesso albero. Vid. Actes de l'Institut Royale d'Encouragement, vol. iii. He died in the year 1836.

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* Besides the two Entomological works alluded to, V. Petagna left behind him another, entitled "Institutiones Botanicæ;" and he published another also with the following title, "Memoria sull' alcuni Insetti del Regno di Napoli." Vid. Actes de l'Academie Royale des Sciences. Vol. I. 1819. Percheron mentions another work besides the "Specimen" and "Institutiones," entitled "Elements d'Entomologie," 2 vols. 8vo.

† Note. C. *melanostigma* has been figured by Baron Hegeer.

5. PHILIPPE CAVOLINI.

Philippe Cavolini, a doctor of laws, devoted the latter years of his life to the study of animals. He first turned his attention to the generation of *Fishes* and *Crustacea*, and he left behind him an interesting memoir on the subject.[*] Afterwards he directed his mind to the observation of the *Zoophytes* of the gulph of Naples, which he examined with great care and accuracy, and described them in one large quarto volume, with nine plates,[†] a work very highly esteemed and which is now become exceedingly scarce. Insects were not neglected by him. He made a handsome present of them to Vincent Petagna, his friend and companion, who in return dedicated to him a species of *Scarabæus*, viz. *Copris Cavolini.*

6. CAIETAN GAGLIARDI.

Caietan Gagliardi was secretary to the Royal Institute of Encouragement of Naples, and author of an Entomological Memoir inserted in the first volume of the Transactions of that Academy, in which he described the larva, habits and manners of *Euplœa Chrysippus*, which, supposing it to be unknown, he named *Papilio Asclepiadis*, because the larva lives on the *Asclepias*.[‡]

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[*] Memoria sulla generazione de' Pesci e de' Granchi. One vol. 4to, with 3 plates. Naples. 1787.

[†] Memoria per servire alla storia de' Polipi marini. One vol. 4to, with 9 plates. Naples. 1785.

[‡] Descrizione del Papilione dell' Asclepiade.

TRANSACTIONS

OF THE

ENTOMOLOGICAL SOCIETY

OF

LONDON.

I. *On the Habits of* Megachile centuncularis. *By* George Newport, F.R.C.S. &c. President of the Entomological Society.

[Read 5 September, 1842.]

So much attention has been paid by naturalists to the habits and economy of the *Hymenoptera*, that it has now become difficult for any one to detail the results of his observations on the well known families of this order, without subjecting himself to the chance of being regarded by the superficial hypercritic as only re-stating what does not require further investigation. But so varied are the circumstances that influence the habits of every species, that almost every one is enabled to add something, even to the best established facts.

Every carefully pursued investigation, therefore, is of value, although its principal facts may be well known, since it is only by the most attentive and repeated observations that we can hope to become fully acquainted with the habits of any one species, and be enabled to arrive at some conclusion in regard to the cause of the variations which are constantly taking place in the proceedings of these interesting "little miniatures of creation."

With this feeling I am induced to lay before the Society some observations made by myself on a curious deviation from its usual habits by the common leaf-cutter-bee—

Megachile centuncularis.

On the morning of the 19th June, 1829, I observed one of these busy little creatures conveying alternately portions of rose-leaves, and of some other material, which, at first, I could not identify, to a hole in a brick wall in our garden, where she was constructing her nest. The whitened and singular appearance of this new material induced me to watch her proceedings, to ascertain its nature. The quantity conveyed by her was fully equal to that of the rose-leaves, and it seemed to be regarded by her with quite as much attention. On examining her proceedings very closely, which I had an opportunity of doing, as the nest was advanced towards the entrance of the hole, I was much amused at the precision with which she seemed to adjust her materials. On one occasion, after being for some time engaged in the hole, she came to the entrance for a few seconds, and seemed as if surveying the interior, and then again proceeded to the bottom of the cell. After she had remained there for some time, she suddenly brought out a piece of the white material and dropped it on the outside of the nest as if unfitted for her purpose, and then flew away, and in a few moments afterwards returned with a portion of rose-leaf. On examining the material rejected by her, I was surprised to find that it was a little piece of *cotton cloth, very finely carded, or picked to pieces,* and which I at first supposed had been substituted for some other material usually employed by her. In the early part of the following day she had made good progress with her labour; I saw her at work very soon after four o'clock in the morning, when she was bringing in rose-leaves, and *also cotton,* as on the previous day, with great assiduity; and she continued to do so until about ten o'clock, after which I missed her for nearly two hours. At that time I suspect she was engaged in the business of oviposition. The interior of the nest seemed then to have been nearly completed, and the hole was partially lined with cotton at its entrance. Soon after twelve o'clock I again saw her; she was then heavily laden with pollen. At one o'clock her activity was increased, and *rose-leaves alone* were then conveyed to the hole with great rapidity, and continued to be so until the nest was completed. At this stage of her labours I carefully noted the length of time that elapsed from the moment of her leaving the nest to her return to it laden with rose-leaf, and was astonished to find that it *never exceeded forty-five seconds,* and very frequently not more than *thirty seconds;* although, as I afterwards discovered the rose-bush from which, from the direction of her flight, she seemed to have cut the leaves, she must have flown at least a quarter of a furlong and back again, besides having to cut her material of its proper shape. Now if we allow only one-third of the whole time to have been employed in cutting the leaf, which certainly is less than that usually occupied in this labour, her velocity of flight could never have been less than at the rate of a mile in six or seven minutes, and often in less than three minutes and fifty seconds.

At three o'clock in the afternoon her labour was completed. She had then closed the entrance to the nest, and had also filled up part of the hole with rose-leaves. After taking a survey of the spot she flew away, but in a few seconds returned, as if to press down the leaves a little closer, and then deliberately left the place, and proceeded in search of another hole in the same wall for a repetition of her labours. I then secured this interesting little creature as an acceptable specimen for my cabinet.

On the 17th of July, twenty-seven days from the completion of the nest, I removed the bricks from the wall for the purpose of examining it. On separating two bricks, between which the nest was built, I found that the hole extended in a horizontal direction about five inches, and that it contained four centuncules, each of which was occupied by a full grown larva, that was spinning a cocoon of brown silk, preparatory to changing to a nymph. But what now excited my admiration was the instinct exhibited by the parent in the construction of her nest. The base of the hole being full of cavities, and altogether uneven, the little architect had remedied these defects by *filling them with the cotton* she had been so actively conveying to the spot, until the interior of the hole presented an even surface, around which she then placed the rose-leaves, the materials usually employed by her. I could not help feeling that this was one of those admirable variations of instinct which ought to make us hesitate when we are told that insects, and the higher orders of invertebrated animals, *are not* endowed with faculties which approach somewhat closely to that of reason.

II. *On the Entomology of China, with Descriptions of the new Species sent to England by Dr. Cantor from Chusan and Canton. By the* Rev. F. W. Hope, F.R.S. &c.

[Read 7 March, 1842.]

Very little is known of the Entomology of China. Our countryman Donovan, in the year 1798, published a quarto volume containing descriptions of twenty-five *Coleoptera*, besides various insects of other Orders. It is, I believe, the only work exclusively devoted to Chinese insects. The descriptions of the species, according to the taste of that day, are decidedly too laconic, so much so that without the accompanying plates it would be difficult in several instances to recognize the insects intended. The plates, however, are well worthy of Donovan, and exhibit a richness of colouring which has rarely, if ever, been surpassed. In the continental works of Entomologists some Chinese insects occasionally will be found described, but the number is but small. I believe that in the catalogue of the Baron De Jean scarcely 100 species are noticed as occurring there; now, allowing another century of species to be included in the writings of other authors, we shall then have the paltry amount of 200 *Coleoptera*, which are all that can be mentioned as inhabiting one of the most considerable of eastern empires. It should here be mentioned that a large proportion of East Indian insects are common to China, and therefore the number of known species might be greatly increased. That the Chinese Fauna will eventually prove to be rich cannot be doubted. As to the number of species and abundance of individuals no paucity will ever be discovered. It may then fairly be deduced from the foregoing remarks, that we know scarcely anything of China entomologically. The acquisition therefore of fifty new *Coleoptera* is certainly an important addition to that Fauna. Sorry am I to add that the bulk of these were collected by Dr. Cantor just after a recovery from the Chusan fever, with which he was severely attacked. "They are," as he states in his letters, "chiefly from two localities, Chusan and Canton, and I could wish that they were more numerous and valuable. No one can form an idea what I suffered in collecting them, and, when collected, the difficulty of keeping them from mould and accident was no trifling matter. Pray let them be described, if it is only to convince others that zeal for science and assiduity on my part have not been wanting." In accordance with Dr. Cantor's wish I have described fifty new *Coleoptera*. Dr. Horsfield has kindly under-taken the *Lepidoptera,* and it is hoped that the remaining Orders, containing but few species, will not be neglected by those members of this Society who are capable of describing them. In concluding these brief remarks I have only to add, that since a renewal of our acquaintance with Chinese forms has commenced, it will be well not to neglect them; there are several naturalists able and willing to collect for us, and it is but just that their exertions and labours should be recorded in describing for them what they have amassed.

To what more valuable Entomological region can we look than China: let us speak of the unknown regions between the Bay of Bengal on one side, and the Chinese sea on the other, and, next, the territories between Pekin on the north and Singapore on the south, we shall there find a sufficiency of climate, soil, mountain, forest, jungle, lake, and land; in short, all that the most fastidious can desire. It is in those extended limits of the east that much, very much, may be expected, and I would here designate them as holding out a Sofala or an Eldorado to the Entomologist. It is reported that the discovery of silk was first made in those regions. There the manufacture of it has flourished for centuries, and still it flourishes in perfection. It is there we may obtain raw silk sufficient to glut the European markets. There also we shall find the Cochineal and Lac insects, abundance of honey and wax, and why may not galls of commerce and other insectal products be confidently expected? such indeed as may tend to the promotion of arts and sciences; in a word, few countries of the world are so immensely rich in the treasures of nature as China, and as the arts have derived much benefit from thence, let us see if science, and particularly the science of Entomology, cannot equally be benefited.

Descriptions of the New Coleoptera *sent from Chusan by Dr. Cantor.*

LUCANUS.

Sp. 1. *Lucanus Confucius,* Hope.

♂ Niger, nitidus, mandibulis capite thoraceque fere æqualibus. Long. lin. 28, lat. lin. 7.

Caput depressum, clypeo in medio producto, flavo-ciliato. Thorax transverse oblongus, angulis posticis oblique trun-

catis, granulatus. Elytra nigra, nitida, fere glabra, marginibus externis elevatis. Corpus infra concolor, punctatum, prosterno inter pedes anticos hastato et acuto. Pedes femoribus anticis parum robustis. Tibiæ anteriores multidentatæ, quatuor posticis in medio unispinosis.

♀ Fœmina nigra, nitida, differt mandibulis brevibus, intus unidentatis, apicibus acutis; capite subvarioloso, thoraceque punctulato.

The female is generally brighter than the male, and resembles jet; and yet, when examined under a lens, it is more punctured than is the case with the male.

Sp. 2. *Copris Sinicus*, Hope.

Niger, exscutellatus, thorace prominentia duplici, cornu capitis erecto, intus ad basin 2-denticulato.

♂ Long. lin. 10, lat. lin. 5¼.

Clypeus rotundatus et emarginatus, cornu erecto, apice acuto, ad basin scabro et 2-denticulato. Thorax ater, nitidus, sub lente tenuissime punctatus, in medio prominentia duplici, lineaque longitudinali fortiter impressa insignitus. Elytra 8-striato-punctata, punctis striarum valde impressis. Corpus infra nigrum et nitidum, femoribus subcompressis et punctatis.

The above species is somewhat allied to *Copris Sabæus*, Fab.; it is, however, evidently distinct, and appears to be undescribed.

Sp. 3. *Copris Sinensis*, Hope.

Niger, exscutellatus, clypeo emarginato, capite tuberculo lato armato.

Long. lin. 9, lat. lin. 4½.

Mus adhuc latet.

Thorax punctulatus, linea longitudinali punctata e medio dorsi ad suturam vergente, angulis anticis rotundatis. Elytra striato-punctata, pedibus valde compressis, sparsimque punctatis.

The above insect is apparently the female of a Chinese species, with the male of which we are unacquainted.

Sp. 4. *Onthophagus Sinicus*, Hope.

Niger, antennis luteis, clypeo integro, capite cornu tauriformi.

Long. lin. 4¼, lat. lin. 2¼.

Thorax punctulatus. Elytra striato-punctata, interstitiis disci punctatis. Podex semicircularis, margine elevato. Corpus infra nigrum et nitidum, pedibus atro-piceis.

Fœmina differt capite inermi, thorace prominentia lata insignito, lateribus subtuberculatis, angulis anticis subacutis.

It is with a doubt that I give the latter as the other sex of *Sinicus*. The sculpture of the elytra and thorax of both male and female accord tolerably well.

Xylotrupidæ, Hope.

Dipelicus, Hope.

Corpus oblongo-ovatum, convexum. *Caput* parvum, vertice cornu erecto brevi armatum. *Mandibulæ* subtriangulares, depressæ, inermes. *Maxillæ* intus tridentatæ, dente basali lato tridenticulato, apice lato rotundato subbifido. *Palpi* maxillares formæ ordinariæ. *Mentum* subparallelum, apice rotundato et parum angustiori. *Palpi* labiales valde securiformes. *Antennæ* 10-articulatæ, articulis 6 et 7 præcedentibus latioribus, ultimis tribus clavam formantibus. *Pedes* breves robusti, posticis 4 metatarsis dilatatis, calcariis pedum 2 posticorum latis. *Prothorax* inermis.

Sp. 5. *Dipelicus Cantori*, Hope. (Plate I. fig. 1.)

Piceus, capite antice trigono, postice cornu elevato triangulari.

Long. lin. 19, lat. lin. 8¾.

Thorax convexus, varioloso-punctatus, marginibus undique elevatis. Elytra atro-picea, lineato-punctata, sutura lata insignita. Corpus infra rubro-piceum, femoribus rufis capillis obsitis. Pectus hirsutum. Segmentis abdominis punctatis et rufo-ciliatis.

[Plate I. fig. 1, the insect of the natural size; 1 *b*, mandible; 1 *c*, maxilla; 1 *d*, mentum and labial palpi; 1 *e*, antennæ.]

The above insect is named in honour of Dr. Cantor, who has enriched the Entomological Society's Cabinet with a series of duplicates from Chusan.

Sp. 6. *Mimela Downsii*, Hope.

Affinis *Mimelæ glabræ*, Hope, at minor.

Long. lin. 6, lat. lin. 3.

Totum corpus supra viride et glabrum, antennis atro-virescentibus, infra aurato-viride. Mesosternum abrupte truncatum. Pectus et segmenta abdominis capillis flavescentibus obsita, pedibus aureo-virescentibus tarsisque nigris.

This is the smallest species known.

Sp. 7. *Popillia Maclellandi*, Hope.

Castanea, capite punctulato, thorace glabro cupreo, elytris castaneis, podice atro, maculis duabus flavis, e pilis brevibus formatis.

Long. lin. 7, lat. lin. 3¼.

Corpus infra cupreum, flavescentibus capillis dense obsitum. Pedes femoribus tibiisque cupreo-æneis, tarsis antennisque piceis.

The above insect is the largest Asiatic *Popillia* that is known; it is named in honour of Dr. Maclelland.

Sp. 8. *Popillia castanoptera*, Hope.

Castanea, clypeo integro punctato, parum reflexo, viridi.

Long. lin. 5, lat. lin. 2½.

Thorax concolor, crebrissime punctulatus, fossula utrinque impressa. Scutellum punctatum. Elytra pallide castanea, striato-punctata, striis et punctis haud fortiter insculptis. Corpus infra viride, pectore segmentisque abdominis utrinque albidis capillis obsitis. Pedes femoribus tibiisque viridibus, tarsisque piceis.

Popillia is very rich in species; more than double the number already described have fallen under my notice.

HOLOTRICHA, Kirby.

Sp. 9. *Holotricha Sinensis*, Hope.

Picea, clypeo emarginato, thorace convexo pruinoso, fossula utrinque impressa, marginibusque externis subserratis.

Long. lin. 10, lat. lin. 4½.

Elytra rubro-picea, punctatissima. Corpus infra concolor, pectore flavis capillis obsito, abdomine valde convexo, tumido, punctato et nitido. Pedes picei, tarsis pallidioribus.

Sp. 10. *Holotricha plumbea*, Hope.

Totum corpus supra et infra pruinoso colore tectum.

Long. lin. 10¾, lat. lin. 4¼.

Caput clypeo fere integro. Thorax convexus, punctulatus, lateribus sub lente parum subserratis. Elytra plumbeo-picea, punctata, quibusdam lineis insignita. Corpus infra concolor, abdomine valde deflexo, tumido; pedibus piceis, tarsis pallidioribus.

The species of *Holotricha* of Kirby abound in the East Indies. I possess about twenty species from the British Presidencies, and know of at least the same number in our metropolitan collections.

Sp. 11. *Serica Sinica*, Hope.

Atro-plumbea, clypeo integro, antice punctulato, postice glabro.

Long. lin. 4, lat. lin. 2¼.

Thorax marginibus parum elevatis. Elytra plumbea, seu atro-pruinosa, lineolata, lineis haud distinctis. Corpus infra atro-piceum, femoribus pallidioribus et compressis, tibiis tarsisque piceis.

The metropolis of *Serica* is the East Indies; the numerous species from those parts of the world which are undescribed are considerable; more than twenty, from different localities, in my collection, are yet undescribed.

ELATERIDÆ.

Agrypnus, Eschcholtz.

Sp. 12. *Agrypnus orientalis*, Hope.

Affinis *A. cœnoso* Hope, at major.

Long. lin. 9, lat. lin. 3.

Fuscus, flavisque capillis aspersus. Clypeus integer, auricomus. Thorax angulis anticis obtusis, disco in medio 2-tuberculato. Elytra striata, flavisque minutis capillis irrorata. Corpus infra concolor, antennis aurantiis pedibusque rubro-piceis.

Ludius, Latreille.

Sp. 13. *Ludius crocopus*, Hope.

Fuscus, antennis concoloribus.

Long. lin. 7, lat. lin. 2.

Thorax angulis posticis valde acutis, tomentosus. Elytra striata, striis sub lente parum punctatis. Corpus infra fuscum, pedibus croceis.

Sp. 14. *Ludius luteipes*, Hope.

Affinis *L. umbracolæ* Eschscholtz, at minor.

Long. lin. 5¼, lat. lin. 1½.

Niger, antennis flavescentibus. Thorax albo-tomentosus. Elytra striato-punctata, nigricantia. Corpus infra concolor, pedibus flavo-testaceis.

Sp. 15. *Ludius 4-lineatus*, Hope.

Castaneus, thorace nigro, elytris quatuor lineis nigris insignitis.

Long. lin. 4½, lat. lin. 1¼.

Antennæ nigræ, capite concolori. Thorax ater, capillis flavis aspersus. Elytra castanea, interne et externe linea lata nigra insignita. Corpus infra piceum, pedibus flavescentibus.

Of the three species of *Ludius* described, two only strictly belong to that genus; as it may be considered at present as a magazine genus, I do not attempt its subdivisions, to one of which the last species belongs.

LAMPYRIDÆ.

Colophotia.

Sp. 16. *Colophotia flavida*, Hope.

Affinis *C. præustæ* Eschscholtz.

Long. lin. 4½, lat. lin. 1½.

Flava, capite atro, oculis magnis. Thorax convexus, concolor, angulis posticis subacutis, medio disci linea fortiter impressa insignito. Elytra flavescentia, apicibus subfuscis. Corpus infra flavum, femoribus concoloribus, tibiis tarsisque nigris.

Sp. 17. *Lycus Cantori*, Hope.

Aurantius, antennis fusco-nigris.

Long. lin. 3¼, lat. lin. 1.

Thorax flavidus, cruce nigricanti insignitus. Elytra tota aurantia, substriata, marginibus elevatis. Corpus infra nigrum, femoribus antice testaceis, postice fuscis, tibiis tarsisque nigricantibus.

Sp. 18. *Nacerdes Chinensis*, Hope.

Flava, capite nigro, antennis duobus primis articulis fuscis, reliquis flavescentibus.

Long. lin. 5½, lat. lin. 1¼.

Thorax cum elytris concolor, horum apicibus nigris. Corpus infra flavum, tibiis tarsisque nigricantibus.

Sp. 19. *Lagria nigricollis,* Hope.

Flava; antennis, capite, thoraceque nigris; elytris pallidè castaneis, villosis. Corpus infra piceum, pedibus concoloribus.

Long. lin. 3, lat. lin. $1\frac{1}{4}$.

Longicornes.

Sp. 20. *Hamaticherus Cantori,* Hope.

Affinis *Hamatich. Paridi,* Wiedemann. Magnus, fusco-brunneus, sericeus, elytrisque corpore longioribus.

Long. lin. 26, lat. lin. $6\frac{1}{2}$.

Caput porrectum, fronte foveolata. Thorax fortiter rugosus, utrinque armatus, lineâ mediâ longitudinali valde incisâ insignitus. Elytra fusco-sericea, aureola pubescentia tecta, apicibus subtruncatis, suturaque acuminata. Corpus infra concolor.

The above insect, in magnitude, is one of the largest species known, and, like other *Hamaticheri,* it is subject to vary greatly in size; it is named in honour of Dr. Cantor, to whom the Entomological Society is much indebted for a series of insects from the locality of Chusan.

Trirachys, Hope.

Genus novum *Hamatichero* affine.

Caput porrectum, fronte rugosa. Antennæ 11-articulatæ, articulo 1mo crasso, valde rugoso; 2do minimo; 3tio, 4to, et 5to spinis armatis; quinque sequentibus gradatim longioribus et inermibus, extimo longissimo ternis præcedentibus haud æquali. Thorax utrinque armatus rugisque transversis impressus. Elytra apicibus 2-spinosis, marginibus elevatis. Pedes femoribus tibiisque compressis. Tarsi articulis cordiformibus, duobus primis simplicibus, ultimo subbilobato auricomato.

Sp. 21. *Trirachys orientalis.*

Magnus, brunneus et aurato-sericeus.

Long. lin. 21, lat. lin. $6\frac{1}{4}$.

Antennæ piceæ. Thorax utrinque armatus et rugosus, dorso binis sulcis longitudinaliter impressis. Elytra late sericea, apicibus 2-spinosis. Corpus infra piceum, sericeisque capillis obsitum. Pedes femoribus tibiisque piceis, tarsisque auricomatis.

I have thought fit to constitute the above insect the type of a

new genus, as it does not accord with *Paris* of Wiedemann, and any of its congeners. The peculiarity of the above genus is having three joints of its antennæ armed, which in the other sex is wanting. The oriental *Hamaticheri* require subdivision, the characters of which may be derived chiefly from the antennæ as well as from the presence or absence of armature. In our Metropolitan Cabinets three or four other species will be found.

Sp. 22. *Monohammus alternatus*, Hope.

Affinis *M. dentatori* Fab. at minor.

Long. lin. 10, lat. lin. 1¼.

Griseo-brunneus, thorace spinoso, elytris cinereo, brunneo, glaucoque nebulosis. Corpus infra concolor.

Sp. 23. *Oplophora Horsfieldii.* (Plate I. fig. 2.)

Nigra, flavo-variegata, antennis albo-cingulatis.

Long. lin. 20, lat. lin. 8.

Thorax utrinque spinosus ater, lineis binis flavis longitudinalibus insignitus. Elytra duodecim maculis flavis notatis. Corpus infra atrum, nitidum, pectore flavido, segmentisque abdominis utrinque flavo-maculatis. Pedes nigri, tibiis in medio atro-pilosis.

Sp. 24. *Cassida piperata*, Hope.

Flava, antennis concoloribus, quatuor ultimis articulis nigricantibus.

Long. lin. 2½, lat. lin. 13.

Thorax fere hyalinus, flavus, maculâ minutâ nigrâ in medio disci positâ. Elytra flava, disco nigro-piperato. Corpus infra nigrum, nitidum, pedibus flavescentibus.

Sp. 25. *Clythra nigrifrons.*

Aurantia, capite nigro, thorace flavo immaculato.

Long. lin. 3, lat. lin. 1½.

Elytra rubro-flava, humeris atro-maculatis, fasciâque nigro-violaceâ ante apicem positâ. Corpus infra pectore flavescenti, abdomine nigro, argenteisque capillis obsito, pedibus atris.

The above insect is subject to vary considerably; some specimens are nearly all yellow, with a small humeral spot, others again have no fascia near the apex of the elytra, and occasionally the fascia is subdivided into small black lines and irregular black spots.

Sp. 26. *Coccinella* 18-*spilota.*

Flava, binis maculis irregularibus nigris notata, elytris 18-spilotis, maculâ scutellari communi. Corpus flavum, pectore nigricanti, pedibusque flavescentibus.

Long. lin. 3¼, lat. lin. 2¼.

The above species is also subject to great variation; in some specimens the thorax is entirely black.

Sp. 27. *Coccinella succinea.*

Succineo-flava, thorace pallidiori, maculis quatuor in medio disci nigris.

Long. lin. 3, lat. lin. 2.

Elytra immaculata. Corpus infra flavum, pedibus concoloribus.

Sp. 28. *Coccinella tetraspilota.*

Flava, thorace antice flavo, postice nigro.

Long. lin. 2¼, lat. lin. 1¼.

Elytra pallide flava, sutura nigricanti, macula rotundata nigra ad humeros posita, secunda formâ irregulari, fere ad medium disci locata. Corpus infra flavum, pectore medioque abdominis nigro-piceis, pedibusque testaceis.

Descriptions of the New Coleoptera *from Canton, sent to England by Dr. Cantor.*

Sp. 1. *Melolontha Chinensis.*

Affinis *Mel. Nepalensi,* Hope. Castanea, thorace colore saturatiori inquinato albisque capillis irrorata.

Long. lin. 18, lat. lin. 8¼.

Elytra testacea, lateribus externe sulcatis et atro-marginatis. Podex fere trigonus, apice subemarginato. Corpus infra piceum capillisque griseis obsitum. Mesosternum cuspide robusto armatum.

The above insect, along with *Melolontha Indica, Nepalensis,* and others, form a peculiar section. At first sight the present species appears to belong to *Ancylonicha* of De Jean, and the species named by the baron is certainly much like it; the absence of a spear to the mesosternum plainly marks the species.

Sp. 2. *Anomala controversa*, Hope.

Castanea, capite piceo, margine anteriori parum elevato, antennæ testaceæ.

Long. lin. $6\frac{1}{2}$, lat. lin. 3.

Thorax flavo-castaneus, punctatus, maculis magnis binis nigris insignitis, alteraque minori utrinque in marginibus locata. Elytra striato-punctata, quibusdam lineis elevatis flavis conspicua, discus flavo piceoque colore variegatus. Podex flavescens. Corpus infra concolor, femoribus luteis, posticis binis incrassatis, tibiis tarsisque rufescentibus.

The above insect has been regarded as similar to the *Anomala Hopfneri*, which pertains to the new world, and is, I believe, not uncommon in Mexico. The present insect is an East Indian species, and, although according in colour and marking, is evidently distinct; its form at once is sufficient to distinguish it.

Sp. 3. *Galba Chrysocoma*, Hope. (Plate I. fig. 3.)

Flava, capite nigro, antennis pectinatis atris.

Long. lin. 8, lat. lin. $2\frac{1}{2}$.

Thorax antice rotundatus, angulis posticis acutis, disco 4-tuberculato, tuberculis auratis capillis tectis. Elytra aureo-tomentosa, fusca, apicibus acuminatis. Corpus infra nigrum, aureo-tomentosum, pedibusque concoloribus.

[Plate I. fig. 3, the insect magnified; 3 *a*, the front of the head and mandibles; 3 *b*, mandible; 3 *c*, maxilla; 3 *d*, mentum, &c.; 3 *e*, antenna; 3 *f*, prosternum; 3 *g*, tarsus.]

Sp. 4. *Harpalus Sinicus*.

Niger, capite antice rubro-piceo, postice atro nitido, antennis rufo-fuscis pilosis.

Long. lin. 7, lat. lin. 2.

Thorax lateribus rufo-marginatis, posticeque parum punctulatus. Elytra striata. Corpus infra concolor, pedibus flavescentibus.

Sp. 5. *Amara orientalis*.

Nigra, antennis rufis, thorace rufo-marginato, elytris striato-punctatis, pedibusque rufo-testaceis.

Long. lin. 3, lat. lin. 1.

The present insect appears to be mediate between true *Harpalus* and *Amara*.

Sp. 6. *Harpalus cyanescens*, Hope.

Niger, capite concolori, antennis duobus articulis primis testaceis, reliquis fusco-nigris.

Long. lin. 4½, lat. lin. 1¼.

Thorax ater, margine omni flavo. Elytra striato-punctata, medio disci cyaneo, sutura flaveola, ternis lateralibus striis flavis. Corpus infra piceum, pedibus luteis.

Sp. 7. *Harpalus difficilis*, Hope.

Atro-ænea, antennis fuscis.

Long. lin. 3, lat. lin. ¾.

Thorax flavo-marginatus, elytris striatis, atro-æneis, apicibus testaceis. Corpus infra piceum, pedibus flavescentibus.

Sp. 8. *Harpalus trechoides*, Hope.

Fusco-flavus, antennis binis primis articulis testaceis, reliquis atris.

Long. lin. 2½, lat. lin. ¾.

Thorax brunneus, margine omne flavo. Scutellum concolor. Elytra fusco-brunnea, suturâ maginibusque externis flavescentibus. Corpus infra luteum, pedibus concoloribus.

The above three species are nearly allied to *Selenophorus;* but as it is doubtful if the genus is not described by foreign writers, I leave them at present under the name of *Harpalus.*

Sp. 9. *Coptodera 2-cincta*, Hope.

Flava, capite rufo, antennisque rubris.

Long. lin. 2, lat. lin. ½.

Thorax niger. Elytra nigra, binis fasciis flavis insignita, una ad humeros alteraque ad apicem posita. Corpus infra testaceum, pedibus concoloribus.

Sp. 10. *Haliplus Sinensis.*

Flava, capite rufo, thorace luteo, binisque maculis punctis insignito.

Long. lin. 1¾, lat. lin. 1.

Elytra pallide flava, striato-punctata, punctis nigris, maculisque quatuor majoribus in medio disci positis, sutura nigricanti. Corpus infra testaceum, pedibus luteis.

Sp. 11. *Volvulus*, N. S.

Evidently a new species; but it is in too mutilated a state to describe.

Sp. 12. *Hydrobius neglectus.*

Fulvus, capite rufo, thorace pallidiore.

Long. lin. 2, lat. lin. 1.

Elytra fusco-flava, striata. Corpus infra nigrum, pedibus flavo-piceis.

Sp. 13. *Upis Sinensis*, Hope.

Niger, opacus, thorace punctulato, angulis anticis lateribusque parum rotundatis.

Long. lin. 8, lat. lin. 2¾.

Elytra variolosa punctata, punctis fortiter insculptis. Pedes femoribus clavatis, tibiis quatuor anticis subincurvis, posticis fere rectis.

Sp. 14. *Amarygmus carbonarius.*

Niger, capitis fronte foveolata.

Long. lin. 8½, lat. lin. 3½.

Thorax convexus, lateribus elevatis. Elytra striato-punctata nigra. Corpus infra concolor, femoribus parum incurvis, tibiisque rectis atris.

Sp. 15. *Epilampus pulcher.*

Cupreo-æneus, antennis nigris.

Long. lin. 4½, lat. lin. 2.

Thorax atro-æneus, cupreoque colore tinctus. Scutellum atrum. Elytra striata, aurato-viridia puniceoque colore inquinata. Corpus infra piceum, pedibus concoloribus.

Sp. 16. *Epilampus Chrysostictus.*

Nigro-æneus, capite supra fortiter impresso.

Long. lin. 5¼, lat. lin. 2.

Thorax ater, marginatus, macula media aurata, lateribus aureola falcatâ lanâ utrinque insignitis. Corpus infra piceum, pedibus concoloribus.

Sp. 17. *Apate rejecta*, Hope.

Nigra, thorace convexo, disco utrinque minutis dentibus scabro.

Long. lin. 2½, lat. lin. 1.

Elytra rugoso-punctata, ante apicem 2-dentata. Corpus infra nigrum, pedibus atro-piceis.

Sp. 18. *Apate rufa*.

Totum corpus supra et infra rufum, thorace convexo punctulato.

Long. lin. 1½, lat. lin. ¼.

Elytra fortissime punctata, apicibus rotundatis et integris. Pedes concolores.

Sp. 19. *Promeces Sinensis*.

Obscure viridis, capite cyaneo, antennisque atris.

Long. lin. 13, lat. lin. 2½.

Thorax utrinque armatus, niger, ternisque lineis viridi-auratis insignitus. Elytra elongata, nigro-viridia, sutura pallidiori. Corpus infra viride, beryllino-sericeum. Pedes femoribus violaceis, tibiis nigricantibus, tarsisque infra flavo-comatis.

Sp. 20. *Eumolpus ignicollis*.

Violaceus, capite antice nigro, postice aurato, medioque viride.

Long. lin. 3½, lat. lin. 1½.

Thorax cupreo-igneus, marginatus, sub lente punctulatus. Elytra violacea, lineato-punctata, marginibus purpurascentibus. Corpus infra concolor, pedibus atro-violaceis.

Sp. 21. *Galleruca atripennis*.

Nigra, antennis luteis, thorace flavo, elytrisque atris et nitidis, sub lente punctulatis. Corpus infra luteum, pedibus concoloribus.

Long. lin. 3½, lat. lin. 1½.

The above species is probably an *Aulacophora*.

Sp. 22. *Galleruca erosa*.

Lutea, antennis fuscis, primo articulo rubro.

Long. lin. 2¼, lat. lin. 1¾.

Thorax utrinque lateribus subspinosis. Elytra pallide lutea, erosa. Corpus infra concolor.

In addition to the above species two remain undescribed; the one apparently is allied to *Cercus*, and the other is probably an *Hydrobius;* both, however, are in too bad a state to describe, as they are imperfect.

III. *On the Pulvilli of Flies.* *By* William Spence, Esq. F.R.S., &c.

[Read 6th March, 1843.]

In a note at p. 261, vol. ii. of the new edition of our "Introducduction to Entomology," on the pulvilli of the common house-fly, I have detailed the observations which led me to the conclusion, that if the hypothesis of Mr. Blackwall, which refers the power possessed by this insect of walking up polished vertical surfaces or horizontal ones with its back downwards, to the exudation of a glutinous secretion from the ends of the hairs of its pulvilli, be proved to be correct, it will probably be found that the process of rubbing its tarsi together, which it constantly exhibits, is not, as has been formerly supposed, one of mere general cleanliness, but a very important operation of its economy, destined to keep the ends of the hairs of its pulvilli free from every particle of dust or moisture which might impede their adhesive action. My attention, since leaving England for Italy, has been frequently directed to this subject; and all my observations confirm the probability of this supposition being well founded, not merely in the case of the house-fly, but of Dipterous and Hymenopterous insects generally, and of many Coleopterous species, a large proportion of which I have seen employ similar manœuvres, apparently for a similar purpose. It would be tedious, as the results are so uniform, to give any detailed account of these observations, but I may mention one of them, which struck me more forcibly than the rest. I have repeatedly seen flies, after rubbing together their two fore tarsi and pulvilli, put down on the surface on which they were standing, first one of the pulvilli, and then the other, and pull at each, as if trying if they would adhere properly: apparently finding from the trial that they would not, again briskly have recourse to the former curry-combing process, repeating these alternate brushings and trials five or six times, and for the space of full two minutes, until having seemingly ascertained that the pulvilli were completely cleaned, and in a fit state to act, they walked or flew away. I do not give this fact as in itself of much weight; but taken in combination with those I had before observed and recorded in the note above referred to, it tends to confirm the supposition there started, as the mere cleansing of the tarsi themselves from dust could scarcely have required so long a process, and interrupted by so many apparent trials of its effect on the pulvilli. My main reason, however, for bringing it under the notice of the Society, is in the hope of drawing the attention of some of the members to a curious subject, which seems to require further investigation, and especially with a microscope of high powers; the first points evidently being to ascertain, beyond all doubt, both by observations on the polished surfaces over which flies and other insects have passed, and on the extremities of the hairs lining the pulvilli, that these hairs do actually excrete a viscid material, as Mr. Blackwall supposes.

IV. *Observations on the Lamellicorn Genus* Cryptodus, *and its Allies.* *By* J. O. Westwood, F.L.S., &c.

[Read 5th July, 1841.]

The genus *Cryptodus* has been well described by Mr. Mac Leay (by whom it was proposed) as the most singular of all the *Petalocera*, in an entomological point of view. Originally placed next *Mæchidius*, in the family *Trogidæ*, its talented proposer has, in his memoir on the *Cetoniidæ*, published in Dr. Smith's African Researches, suggested that its more legitimate situation is the family *Cetoniidæ*, adjoining to *Cremastocheilus*, a group also possessing dentate maxillæ, an immense mentum covering the other parts of the mouth, and a triangularly dilated basal joint to the antennæ; from this group, however, it is distinguished by its corneous dentate mandibles; but as horny mandibles occur in other Cetoniideous insects, Mr. Mac Leay states his conviction that *Cryptodus* belongs to the *Cetoniidæ*, in the following words: "It is now long since that, by reflecting on the concealed labrum of *Cryptodus*, the dilated triangular shape of its antennæ, the horny mandibles and maxillæ, similar in form to those of *Macroma* and *Oplostomus*, the large mentum closing up the mouth, and concealing the palpi, with its naked podex, so different from that of the *Trogidæ*, its depressed body, and peculiar structure, I became convinced that I ought to have assigned this most curious insect to the family of *Cetoniidæ*, and that it ought to have been placed in the immediate vicinity of *Cremastocheilus*."—*Illustr. Annul. So. Afr.* p. 17. On the other hand, Dr. Burmeister having, in his Genera Insectorum, (sub fam. *Xylophila*,) incidentally introduced the genus *Cryptodus* under the family *Dynastidæ*, I have been induced to enter into a revision of the characters of this genus in comparison with those of the several groups to which it has been assigned. The characters from which Mr. Mac Leay associates *Cryptodus* with *Cremastocheilus*, are the dentate maxillæ, without any bristles on the outside of the upper lobe; depressed elongated form of the body; underside of the mentum with a process; large triangular and broad first joint of the antennæ; the reflexed margin of the clypeus, and the epimeron not prominently distinct between the thorax and shoulders of the elytra. The majority of these characters, it is true, are found in both genera, but they differ from each other in other, and, it appears to me, far more important respects. The whole habit of the insects disagree; the mandibles of *Cremastocheilus* are strictly Cetoniideous in form, whilst in *Cryptodus* they are horny, curved, and toothed within; the epimera of the mesothorax are quite visible from above, in front of the humeral angles of the elytra in *Cremastocheilus*, and especially in *Genuchus*, but they are quite concealed in *Cryptodus;* the toothing of the hind tibiæ of *Cryptodus* agrees neither with the *Cetoniidæ* nor *Cremastocheilus*, whereas it accords with the *Dynastidæ*, a tooth being in the middle, and a smaller one nearer the base; the basal joint of the hind tarsi in *Cremastocheilus* is short, as in all *Cetoniidæ*, whereas it is very large and toothed in *Cryptodus*, as in many *Dynastidæ;* the metasternum of *Cremastocheilus* is developed in front, as in the *Cetoniidæ*, causing the middle feet to approach nearer the fore ones* than in *Cryptodus*, which agrees in this respect with *Dynastes;* and the wings of *Cryptodus* are short and broad, as in *Dynastes*, but long in *Cremastocheilus*, as in *Cetonia*.†

As to the characters by which Mr. Mac Leay unites *Cryptodus* with the *Cetoniidæ*, the concealed labrum, horny mandibles, toothed maxillæ, and naked podex, are the characters of the *Dynastidæ*, whilst the dilated triangular scape of the antennæ, and large mentum, are two characters which exist in several Dynastideous insects, of which I add the descriptions to this memoir.

There is still another character of *Cryptodus*, as described by Mr. Mac Leay, which merits notice: referring the genus to the *Cetoniidæ*, he nevertheless observes, "that the insect well merits the title of *Paradoxus*, since it is as unlike *Cetonia aurata*, or any of the usual types of the family, as well may be; and besides, it is the only known insect among the *Cetoniidæ* that has not ten joints to the antennæ." This is indeed a singular character, and is as much at variance with the characters of the *Dynastidæ* as with the *Cetoniidæ ;* but its singularity is greatly increased when it is mentioned, that it is only a specific one, since in a new species in my collection the antennæ are certainly 10-jointed.

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* And also of course thrusting the mesothoracic epimera prominently upwards as in *Cetonia*.

† Dr. Burmeister has also detected another character in *Cryptodus* which agrees with many of the *Dynastidæ*, but is not found in any *Cetoniidæ*, namely, the dissimilarity in the shape of the ungues of the fore feet of the males of *Cryptodus*, one of them being strongly bent, and armed with a tooth beneath, whilst in the female they are both alike, and simple.

Referring, then, this singular genus to the *Dynastidæ*, I will shortly notice its characters as contrasted with those of that family. It was introduced by Mr. Mac Leay into the family *Trogedæ* on account of its possessing 9-jointed antennæ, sharp arched horny mandibles, and maxillæ terminated by sharp horny hooks, "quamvis mento labroque omnino differt." We now find the 9-jointed antennæ no longer a generical character ; and my own and Dr. Burmeister's dissections (published in Mr. Hope's Coleopterist's Manual, and in the Genera Insectorum,) have shown that the horny mandibles and maxillæ of the *Dynastidæ* vary in a very great degree in the form and position of their teeth; the concealed labrum is the character of the *Dynastidæ*, and the large mentum exists in the several Dynastideous genera described below. In the majority of the *Dynastidæ*, however, we find only the upper lobe of the maxillæ dentate, whilst the lower one is terminated by one tooth in *Cryptodus;* but there are other *Dynastidæ* which have also this character. The want of occipital and thoracic horns, and the broad recurved clypeus, are peculiarities of *Cryptodus*, but they are not confined to it, but are found in many *Dynastidæ*, whilst the elongated depressed form of the body occurs in *Phileurus*, and other allied genera ; on these accounts I consider that *Cryptodus* belongs to the family *Dynastidæ*, and that its relationship with *Cremastocheilus* is only one of analogy.

The following are the characters of the second* species of the genus mentioned above.

Cryptodus Tasmannianus, West.

Niger, nitidus, oblongus, punctatus; antennis 10-articulatis ; mento basi truncato, prosterno anticè producto, margine antico fere recto.

Long. corp. lin. 9½, lat. elytr. lin. 4½.

Habitat in Terra Van Diemenni.

In Mus. nostr. &c.

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* Mr. Mac Leay states that he possesses two species from New Holland, so that it is probable a third species exists. It is greatly to be hoped that Mr. Mac Leay will now furnish us with some details respecting the habits of this and other equally singular Australian insects.

Caput latius, angulis anticis clypei rotundatis marginatis, punctatissimum, impressione verticali anticè tuberculis duobus minutis terminata. Mentum basi truncatum. Antennæ distinctè 10-articulatæ. Prothorax transversus, niger, nitidus, punctatus, punctis in parte postica majoribus, et magis distantibus, medio lineâ longitudinali impressâ. Prosternum anticè porrectum, margine antico fere recto. Elytra nigra, nitida, punctis magnis irregularibus, suturâ striisque 4 in singulo elytro parum elevatis et lævibus.

This species is named *C. paradoxus* in most cabinets, but is at once distinguished by the shape of the mentum and basal joint of the antennæ. *Cryptodus paradoxus* differs from the above in its smaller size, being scarcely nine lines long; in being of a more pitchy brown hue; in being less depressed; in having the head squarer, and not so broad; in the two vertical tubercles being more prominent; in the mentum being deeply emarginate at its base, to receive the rounded front of the prosternum; in the 9-jointed antennæ, with the basal joint much more dilated; in having the prothorax not so transverse, and much more closely punctured; in the elytra being scarcely dilated behind, and shorter; and in being covered with exceedingly minute punctures, in addition to the irregular larger ones,—which, however, are neither so large nor so distinct as in my species.

Note.—The insect which I have here regarded as the true *C. paradoxus* agrees with Mac Leay's figures in the form of its mentum and basal joint of the antennæ, and number of joints in the latter organs. It is true that Mac Leay describes the colour of his species as being "ater," which ill accords with any of the specimens I have seen in the Collections of the British Museum and Mr. Hope; beyond this it is impossible, from Mr. Mac Leay's description, to determine the species. Indeed Dr. Burmeister informs me that there is a large black species (16 lines long) in the Berlin Museum, which also accords with Mac Leay's description, and he has accordingly given the name of *Variolosus* to the species which I have regarded as the true *Paradoxus*. In the British Museum Collection my new species is labelled *Paradoxus*, (which it certainly is not,) and the species I have supposed to be that insect is named *Variolosus*.

I now proceed to the descriptions of several insects, which appear to me to prove that *Cryptodus* is referable to the family *Dynastidæ*, to which they belong.

RHIZOPLATYS, West. (Plate II., fig. 3, and details.)

Subgenus novum, e genere *Phileuri.*

Corpus oblongum, subconvexum. *Caput* subtriangulare, clypeo antice acuminato, posticeque tuberculo truncato armatum. *Antennæ* breves, 10 articulatæ, articulo basali latissimo depresso. *Labrum* corneum, ciliatum, pilosum, in medio marginis antici emarginatum, angulis anticis rotundatis. *Mandibulæ* mediocres corneæ, apice acutæ, margine externo bisinuatæ, in utroque latere clypei porrectæ. *Maxillæ* lobo apicali acutissimo, dentibus duobus acutis internè armatæ, lobo interno inermi. *Mentum* magnum heptagonum, labium et articulos duos basales palporum labialium obtegens, pone medium elevatum. Pronotum *Phileuri*, at magis convexum, sulco profundo medio in parte antica, marginibus ejus lateralibus in tuberculum elevatis. *Elytra* brevia, subconvexa, irregulariter punctata. *Pedes* sat breves; ungues pedum anticorum inæquales; onychiis longis, apicè setulosis; tibiis pedum quatuor posticorum ut in *Phileuris* armatis; tarsorum articulo basali magno, apice supero in spinam acutam producto.

This insect possesses most of the characters of *Phileurus*, differing from it, however, chiefly in the more convex and irregularly punctate habit of the species, the simple inner tooth of the maxillæ, the shape of the mentum, the greatly dilated basal joint of the antennæ, and the unequal-sized ungues of the fore legs. It will be found to agree with *Cryptodus* in the general structure of the mouth, namely, the concealed sub-bilobed labrum, the horny acute mandibles, the horny dentate maxillæ, the large mentum concealing the labrum, and base of the labial palpi; the dissimilar form of the fore ungues, the dilated basal joint of the antennæ, and of the four posterior tarsi: and differing from it in the form of the clypeus, the want of a tooth on the inside of the mandibles, and on the inner lobe of the maxillæ; in the different shape of the mentum, and the more convex body. Dependant upon the form of the clypeus, and the comparatively smaller mentum, and large size of the mandibles, is the more exposed position of the latter at the sides of the mouth, whereas we find them in *Cryptodus* completely concealed by the large clypeus and mentum.

Rhizoplatys cribrarius.

Piceo-niger, capite antennarumque articulo basali punctis minutis, tuberculo obtuso frontali, prothorace rude punctato, excavatione profunda in parte media antica utrinque tuberculis duobus elevatis armato, elytris magis piceis, punctis minutis numerosis et irregularibus notatis, femoribus subtus magis castaneis, tibiis anticis tridentatis.

Long. corp. lin. 10.
Syn. *Cryptodon cribrarius*, Dupont MSS.
Habitat in Senegallia?
In Mus. Dom. Hope.

Actinobolus, West. (Plate II., fig. 2, and details.)

Subgenus novum, e genere *Phileuri*.

Corpus oblongo-ovatum, convexum.

Caput subsemiciculare, margine antico elevato, et in lobos 5 rotundatos diviso. *Antennæ* breves, 10-articulatæ, articulo 1mo lato, 2ndo sequentibus majori. *Os* inferum mento magno obtectum. *Labrum* crustaceum, transversum, setosum, lateribus rotundatis. *Mandibulæ* mediocres, corneæ, apice acutæ curvatæ, margine externo eminulo, et mento haud obtecto, intus inermes. *Maxillæ* lobo apicali 6-dentatæ, dentibus tribus infimis in serie transversa positis, lobo interno inermi. *Mentum* magnum, subquadratum, margine antico emarginato, parte anticâ declivi; labium et palpos labiales (articulo apicali excepto) obtegens; labium internum e lobis duobus membranaceis ciliatis constans. *Palpi labiales* breves, 3-articulati, articulis duobus basalibus internis, ultimo longiori, apice detecto. *Prothorax* transversus, convexus, lateribus rotundatis. *Elytra* convexa, striato-punctata. *Pedes Phileuri*, tarsorum quatuor posticorum articulo basali majori, apice supero in spinam producto. *Onychiæ* pedum anticorum breves, haud setigeræ, quatuor posticorum longæ, tenues, apice setigero.

The type of this subgenus recedes still further from *Phileurus* than the preceding; the large 5-lobed clypeus concealing all the mouth, which is placed in the middle of the under-surface of the head, the form of the labrum, which is transverse, instead of being deeply bilobed, and the more arched mandibles, are sufficient at once to distinguish it from the type of *Phileurus*.

With *Cryptodus* we find it to agree in the dilated clypeus, concealing the mouth, which is placed on the underside of the head, the general structure of the different parts of the mouth, the dilated basal joint of the antennæ, and the form of the basal joint

of the posterior tarsi; whilst it differs from that genus chiefly in the 5-lobed clypeus, transverse labrum, internally toothless mandibles and inner lobe of the maxillæ, comparatively smaller mentum and more convex body.

Actinobolus radians.

Piceo-rufus, antennis tarsisque nigricantibus, nitidus, capitis parte postica et pronoto anticè varioloso-punctatis, hujus parte postica lineâ longitudinali mediâ impressâ et punctatâ, elytris striato-punctatis, in singulo striis 10, tibiis anticis extus 4-dentatis, dente infero minuto.

Long. corp. lin. 9.
Habitat in Brasilia.
In Mus. Dom. Hope.

Trionychus, of Dejean's Catalogue, is another African genus closely allied to *Cryptodus*, agreeing with it in its depressed form, broad head, and large mentum; but in this genus we find the mandibles exposed at the sides of the clypeus, as in *Phileurus*. Dr. Burmeister has also separated another group from *Phileurus*, under the name of *Trioplus*, containing the *Ph. cylindricus* of Mannerheim, and the *Ph. sinodendrius* of Perty; these have the mandibles 3-dentate, and the anterior ungues dissimilar in the sexes, one of them being furnished in the middle with a tooth in the males, thus agreeing with *Cryptodus*. As Dr. Burmeister has proposed to illustrate these groups, I shall content myself with this short notice of them, which will be sufficient to prove their relationship with *Cryptodus*.

Directing our attention next to *Phileurus* itself, we find several differences in the form of the mandibles, dependent, as it appears to me, on the form of the clypeus. In most species they terminate in an acute exposed point, as does also the clypeus, thus forming three points in front of the head. The exposed external upper margin is elevated (as Latreille expressed it, "latere externo eminulo"—Gen. Crust. ii. 103); and this elevated part, where its extremity joins the body of the mandible, forms a more and more deeply incised notch, thus by degrees forms a separate tooth. In the New Holland type of *Phileurus*,* (*Ph. subcostatus*, Laporte, Hist. Nat. Col. 2, p. 116; *Ph. depressus*, Hope, MSS., which, by the way, has greatly the habit of *Cryptodus*,) we find the front of the head broad, and the mandibles exposed, but much broader than in the South American type; the extremity being, as it were, truncate, whilst in the East Indian type of *Phileurus*, (of which I have seen three species in the Collection of Mr. Hope, viz. *Ph. Lambertii*, Hope, Bengal; *Ph. intermedius*, Burm. Poonah; *Ph. planatus*, Wied. Dawar,*) the anterior unguis of the fore legs is very broad, and with a small acute tooth on its upper edge; the onychiæ in the fore legs are also long, and bisetose at the tip; the innermost tooth of the maxillæ is 3-dentate, and the middle one bidentate; and the mentum is rather narrow, and emarginate at the tip. Besides the species of *Phileurus* mentioned above, I am only acquainted with one other species which inhabits the old world, namely, the *Ph. Senegalensis* of Laporte, which Mr. Hope has also received from Gambia.

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* In Mr. Kirby's Collection, presented to the Entomological Society, is a specimen of a *Phileurus* marked as from New Holland, and, as received from Mr. Mac Leay, with the pin stuck through the thorax very low, which appears to me to differ in no respect from *Ph. valgus*.

On reviewing the characters of the various groups described or indicated in the preceding observations, it appears to me that they constitute a group in the great family *Dynastidæ*, distinguished at once from all the rest by a character noticed by no previous writer, namely, the complete retraction, towards the internal base of the dilated mentum, of the labium and the basal joints of the labial palpi, a character found also in the *Lucanidæ;* the large size of the basal joint of the posterior tarsi is also very characteristic, although we find it (but not so large) in other *Dynastidæ*.

I shall complete these observations by adding the description of another new genus, which, although having much of the general appearance of the two subgenera above described, possesses a structure of the organs of the mouth quite unlike that of every other Dynastideous group. It has been named *Cryptodon* by Latreille, in his manuscripts communicated to Dejean, by whom it is placed next to *Phileurus*. The peculiarity which led Latreille to propose for it this name, induced me to examine its structure, when I found the relation between it and *Cryptodus* (founded alone upon the large size of the mentum, concealing the other parts of the mouth) to be much slighter than between the last-named genus and the other *Phileuri*. As Latreille's name is too similar to *Cryptodus* to be retained in the same family, I shall describe it under that of

LEPTOGNATHUS, West. (Pl. II. fig. 4, and details.)

Corpus oblongo-ovatum, convexum. *Caput* mediocre, clypeo in lobos duos rotundatos elevatos producto. *Antennæ* breves,

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* Two species are also described by Faldermann, from the North of China.

10-articulatæ, articulo 2do sequentibus majori, clava 3-phylla. *Os* inferum mento magno clausum. *Labrum* parvum, subovatum, basi latius, valde setosum, in cavitate oblonga faciei inferæ clypei receptum. *Mandibulæ* minutæ, bipartitæ; parte externa cornea, apice acuto, parte interna magis coriacea, fere ovata, e præcedenti incisione profunda divisa. *Maxillæ* minutæ, lobo interno magnitudinis ordinariæ, apice rotundato longe ciliato, lobo externo minutissimo, haud ultra apicem præcedentis extenso et inter illum et basin palporum maxillarium inserto; palpi maxillares 4-articulati, articulis longitudine crescentibus. *Mentum* maximum, latum, lateribus rotundatis, margine antico emarginato, valde setoso. *Labium* internum; palpi labiales sat breves, 3-articulati, articulo basali in maribus retracto, in fœmina articulis omnibus detectis. *Prothorax* subconvexus, longitudine latitudinem fere æquans, in maribus major, et magis subquadratus, impressione magna transversa in parte antica; in fœmina antice angustior, lateribus rotundatis, impressione parva antica ovata. *Elytra* obovata, antice truncata, pone medium parum latiora, striato-punctata. *Prosternum* ante pedes anticos deflexo-porrectum. *Femora* antica magna, margine antico in lobum magnum planum pro receptione tibiæ producto; tibiæ anticæ angustæ, in medio subangulato-curvatæ, in maribus magis angulatæ, in utroque sexu extus 3-dentatæ, dentibus duobus superis magis approximatis, ungues antici in utroque sexu simplices; femora postica mediis crassiora, tibiæ 4 posticæ sub-graciles, tarsi graciles articulo basali in pedibus posticis simplici; onychiis pedum omnium brevibus, æqualibus, longè bisetigeris.

Leptognathus Latrellianus, West.

Piceo-niger, nitidus, capite tenue punctatissimo, thorace rude punctato, punctis in parte postica magis distantibus, sulcoque ovato longitudinali parum impresso in parte postica; elytris rude punctato-striatis, singulo striis 11 punctorum magnorum subconfluentium, alterisque minutissimis irregularibus inter strias; striis ante apicem elytrorum inter se confluentibus; corpore subtus et podice fulvo-pilosis.

Long. corp. lin. 8—10.
Habitat in Senegallia.
Mus. DD. Hope et Melly.
Syn. *Cryptodon truncatum*, Latreille, MSS.
—— *Cryptodon Senegalense*, Dej. Cat.

Another species is indicated in Dejean's Catalogue, also from Senegal, whence the impropriety of Dejean's manuscript specific name for the insect above described, which I have accordingly dedicated to Latreille.

Another interesting genus, closely agreeing with the above in the structure of the mouth, has been observed by Dr. Burmeister in the Collection of Mr. Melly. It is of much larger size, and has much of the habit of a broad *Oryctes*. It is from Brazil, and has been named *Pantodinus* by Dr. Burmeister.

DESCRIPTION OF PLATE II.

Fig. 1. *Cryptodus Tasmannianus*, and details.

1 *a*, underside of the head; 1 *b*, head seen sideways; 1 *c*, labrum; 1 *d*, mandible; 1 *e*, maxilla; 1 *f*, antenna; 1 *g*, fore tibiæ and tarsus ♂; 1 *h*, anterior ungues ♂; 1 *i*, basal part of posterior tarsi; 1 *k*, anterior tarsus ♀. The antenna to the right of the insect is that of *Crypt. paradoxus*.

Fig. 2. *Actinobolus radians*, and details.

2 *a*, head seen sideways; 2 *b*, underside of head; 2 *c*, labrum; 2 *d*, mandible; 2 *e*, maxilla; 2 *f* and 2 *g*, mentum, &c. seen externally and internally; 2 *h*, antenna; 2 *i*, ungues.

Fig. 3. *Rhizoplatys cribrarius*, and details.

3 *a*, side view of the head; 3 *b*, labrum; 3 *c*, mandible, 3 *d* and 3 *e*, inner and outer view of the maxilla; [*a*, cardo; *b*, stipes; *c*, squama palpifera; *d*, galea or outer lobe; *e*, mando;] 3 *f*, mentum and labial palpi; 3 *g*, antenna; 3 *h*, terminal joints of anterior tarsus; 3 *i*, base of posterior tarsus.

Fig. 4. *Leptognathus Latrellianus*, and details.

4 *a*, front of head above; 4 *b*, same beneath; 4 *c*, labrum; 4 *d*, mandible; 4 *e*, maxilla; 4 *f*, antenna.

V. *Descriptions of nine British Species of the Genus* Hylæus, *Latr.; together with some Notes on the Economy of* Osmia leucomelana *and* Epeolus variegatus. *By* F. Smith, Esq.

[Read 7th March, 1842.]

Before I enter on the description of the British species of the genus *Hylæus*, I would make a few observations which have occurred to me upon the habits of these insects. I have never had the good fortune to discover their nidi, but have always considered them parasitical, having observed them in some numbers frequenting a bank where *Andrena Afzeliella*, Kirby, nidificates in abundance. Late in the evening I have found (as also on a dull day) as many as three or four inclosed within the petals of the dandelion; these were generally males. I have a pair of the *Hylæus annulatus*, which I took in copula; proving Kirby's species to be correctly assimilated. This genus is remarkable for the singularities of form exhibited in different organs of some of the individuals of which it is composed, as described under the respective species.[*]

Genus Hylæus, Latr.

Head orbicular; eyes lateral, long, extending to the base of the mandibles, distant at the vertex; stemmata placed in a triangle. Antennæ 12-jointed in the female, 13-jointed in the male; scape long in some species, in others considerably dilated; in some males it is fringed with hair. Thorax globose, punctured, as well as the head and abdomen. Abdomen ovate; in some males oblong.

Sp. 1. *Hylæus annulatus*.

Aculeate; black, face generally with pale yellow stripes close to the eyes. Antennæ black. Thorax with a pale spot on the tegulæ and tubercles, sometimes on the collar; anterior and intermediate

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(*a*) The following is a list of the species described:—

1. *Hylæus annulatus*, Kirby's Monograph.
2. ——— *annularis*, Do.
3. ——— *signatus*, Do.
4. ——— *dilatatus*, Do.
5. ——— *pallidens*, Kirby's MSS. No. 113.
6. ——— *cornutus*, Do. No. 118.
7. ——— *plantaris*, New species.
8. ——— *punctulatissimus*, Do.
9. ——— *hyalinatus*, Do.

legs with silvery hair at the base and apex of the tibiæ at the joints; posterior tibiæ annulated with yellow; all the tarsi black.

Male.—Face yellow, with a black line running from the base of the mandibles to the base of the antennæ, and a transverse one near the top of the angle formed. Antennæ black, slightly fulvous beneath. Thorax black; anterior tibiæ with a rufous line in front; posterior legs annulated with pale yellow; all the tarsi are pale at their base. Sometimes a pale spot on the tubercles and tegulæ.

Length, 3 lin. to 3⅓.

Sp. 2. *Hylæus annularis.*

Aculeate; black; head nearly round; a fulvous spot below the base of the antennæ, sometimes obsolete. Antennæ slightly fulvous beneath. Thorax, with the tubercles, a spot on the tegulæ, sometimes on the collar, yellow; base of all the tibiæ yellow. Wings slightly coloured. Abdomen with a few whitish hairs on each side of the first segment, all the margins piceous.

Male.—Face yellow. Antennæ fulvous beneath, rather obscurely so; a yellow spot on the collar; all the tarsi pale at their base; anterior tibiæ with a rufous stain in front, intermediate and posterior pairs annulated with pale yellow.

Length, 2 to 3 lines.

Sp. 3. *Hylæus signatus.*

Aculeate; black. Antennæ fulvous beneath; scape black; face with an obscure fulvous line close to the eyes. Thorax with a white spot on the tegulæ and tubercles. Wings hyaline; anterior tibiæ with a rufous line in front; all the tibiæ fulvous at their extreme base. Abdomen very finely punctured; a fringe of white hair on the lateral margins of the first segment; the ventral also covered with white hairs, which are thinly scattered along the margins of all the segments.

Male.—Face pale yellow or white. Antennæ fulvous beneath. Thorax, anterior legs, with their tibiæ, rufous in front; the posterior plantæ white at their base. Abdomen covered with a fine silvery pile.

Length, 3 to 3½ lines.

N.B.—The males of this species I have frequently found to be larger than the females.

Sp. 4. *Hylæus dilatatus.* (Pl. III. fig. 1, and details.)

Black; face pale yellow; mandibles black at the base, then yellow, with their apex rufescent. Antennæ black above, fulvous beneath, the apical segment totally so; the scape remarkably dilated, subquadrate, convexo-concave; the upper half black, beneath yellow. Thorax, a yellow spot on the tegulæ, one on each side of the collar, also on the tubercles; tibiæ yellow, anterior and intermediate, with a black stain behind; posterior tibiæ annulated with black; the wings fuscous. The abdomen covered with a fine silvery pubescence, particularly the margins of the segments.

Length, 3 lin.

This species is an astonishing instance of what almost appears disproportionate enlargement. The scape of its antennæ, says Mr. Kirby, resembles a "patella," or deep dish; but if viewed on its concave side, it certainly bears a striking resemblance to an ear; and although I would not boldly declare, with a learned professor, "these are its ears," still I consider them admirably adapted for collecting the vibrations of sound. Immediately behind the concavity of the scape, on the face of the insect, is a longitudinal smooth depression, extending to its outer margin, so that a passage for the vibrations of sound (should such a mechanical apparatus be the intention as I have described) is here admirably executed. I have examined the concavity under a Codrington lens, and find it perfectly smooth; not the slightest indication of any aperture or communication either with the joints of the antennæ, or where the scape inosculates with the head. I have drawn a figure of the insects, as well as an outline of the face, and concave side of the scape. This species appears to be rare. I am indebted to Mr. Samuel Stevens for my specimen, captured in Sussex.

Sp. 5. *Hylæus pallidens*, Kirby's MSS.

Male.—Black; scape of the antennæ with a yellow line in front; face white; the mandibles yellow. Thorax more pubescent than in the other species, particularly beneath; anterior tibiæ yellow, with a brown stain behind; the femora with a yellow line in front; intermediate and posterior tibiæ yellow at their base; all the plantæ yellow; remaining joints of the tarsi pale; claws rufous; wings fuscous. Abdomen piceous, with a fringe of white hair on each side of the first segment.

Length, 3 lin.

Sp. 6. *Hylæus cornutus*, Kirby's MSS. (Pl. III. fig. 3.)

Aculeate; black; clypeus bidentate; a singular prominence below the scape of the antennæ, which is black; antennæ fulvous beneath. Thorax finely punctured; a white spot on the tegulæ; the base of the anterior and intermediate tibiæ pale; posterior tibiæ annulated with pale yellow. Wings fuscous, paler at their tips. Abdomen very finely punctured.

Length, 3 lines.

The remarkable horns which arm the clypeus have doubtless their uses, and probably indicate some difference in the habit or economy of this species.

This species is rare; I only know of one specimen in Mr. Kirby's Collection in the Entomological Society's Cabinet, and one in my own, which was captured on Cove Common, Hants.

Sp. 7. *Hylæus plantaris*, (New species.)

Male.—Black face, with scattered hairs. Antennæ much shorter and thicker than in the other males; entirely yellow, slightly stained with fulvous above; scape considerably dilated, with a black streak above, fringed with long hairs, particularly on the approximating margins; a smooth shining depression on the face, into which the scapulæ fall. Thorax with a yellow spot on each side of the collar; a white spot on the tegulæ; base of the wings yellow, remainder fuscous; anterior tibiæ with a yellow stain in front, the intermediate yellow at their base, posterior annulated with yellow; all the tarsi yellow; the intermediate plantæ dilated at the base in front. Abdomen elongate, with longish pale hairs at the extreme lateral margins of the segments, particularly the apical ones; on the underside a patch of fulvous hair, in the centre of the second segment.

Length, 3 lin.

Of this species I took two specimens on Cove Common, Hants.

This I believe to be a new species, and in one respect a remarkable insect—viz. the dilatations of the plantæ of the intermediate legs at their base; the antennæ are much shorter than in the other males of the genus, they are also proportionably thicker; the scape is considerably dilated, and fringed with long stiffish hairs on the margins, which approximate; there is also a difference in the form of the joints of the tarsi; and on the underside of the abdomen, on the second segment, is an angular patch of short fulvous hairs, somewhat similar to the ♂ of *Chelostoma*;

these patches of hair will be observed to form a guard or cushion to the ventral segment of the bodies of the males of several species of bees which repose in flowers, in which they are found curled up.

Sp. 8. *Hylæus punctulatissimus.*

Aculeate; black, with a cream-coloured stripe close to the eyes, crescent-shaped. Antennæ black. Thorax coarsely punctured; the collar on each side, tubercles, and a spot on the tegulæ, pale yellow; wings coloured; anterior and intermediate tibiæ pale at their base; posterior tibiæ with a narrow pale ring at their base. The abdomen with a fringe of white hair on each side of the first segment, and the abdomen laterally clothed with a fine silvery pile.

Male.—Face yellow; scape of antennæ with a yellow line in front. Antennæ piceous beneath. Thorax coarsely punctured; a yellow spot on the tegulæ; the legs piceous; anterior tibiæ fulvous in front, the intermediate yellow at the base, the posterior annulated with yellow; the intermediate and posterior plantæ yellow; all the tarsi piceous.

Length, 3 lines.

N.B. Var. γ of Kirby's *annularis,* on comparison I find is the ♂ of my *punctulatissimus.*

I have little hesitation in placing these, as sexes, together. I took them in company at Coomb, in flowers, and met with no other species.

Sp. 9. *Hylæus hyalinatus.*

Aculeate; head black; very minutely punctured, with deep scattered punctures intermixed. Antennæ black, slightly piceous beneath. Thorax, like the head, is finely punctured, with large deep punctures intermixed; wings hyaline, nervures black; all the legs black; posterior pair annulated with pale yellow. Abdomen black, with silvery hairs on the ventral segment.

Male.—Black; face yellow. Antennæ with the scape black, the remaining joints fulvous beneath; the face is very coarsely punctured; the thorax has a scattered silvery pubescence, particularly beneath; a yellow spot on the tegulæ and tubercles; wings hyaline; anterior femora yellow, with a brown stain behind; intermediate and posterior tibiæ annulated with yellow; all the plantæ and following joint yellow, the rest rufescent.

Length, 2 lines.

I received this species from Mr. Thwaites; it is very distinct from any of the foregoing, and is a smaller species.

Five years ago I captured a single specimen of *Osmia leucomelana*, which I saw enter an excavated bramble stick. From the cocoons contained in it, I confidently expected to breed the *Osmia*, but to my great surprise, in the month of June in the following season, a new species of *Epipone* was developed. I visited the locality, in which I found the bee, the four following summers, and although I occasionally found a specimen,—in one instance a male and female in the same stick,—still I could not discover one containing the nest of the bee. This season, on the 19th of July, I again visited Cove Common, Hants, and after a careful search I succeeded in finding some excavated sticks. My plan is, if possible, to cut the sticks in the evening, first carefully stopping up the entrance, as the probability is that the female bees will then be in them; by this means I took three females and five of *Epipone levipes*.

The burrow formed by the *Osmia* is different to that of *Epipone*, which clears out all the pith previous to forming her cells. The *Osmia* excavates to the depth of about four inches, her course through the pith being somewhat serpentine; having arrived at the necessary depth, she commences alternately to widen and contract her burrow equally, each alternation occupying three-eighths of an inch; this she repeats five times—(see Pl. III. fig. 4); these spaces form the receptacles of the pollen and honey; having stored up a sufficient quantity in the furthest cell, she next deposits an egg against the mass, one end of which is pushed into it, and by that means retains its position; she then forms a division between the stored and next empty cell, this division is about the thickness of a common address card, and is composed of small pieces of leaf, mixed with some gummy substance, and so compactly is it finished, that I fancied it was circular pieces of leaf stuck together, until I immersed one in hot water, when the gum or wax dissolved. In one of the sticks in which I found a female *Osmia*, the third cell was just completed, or stored, and an egg deposited. The egg is about one line long, tapering a little at each end, and is in fact about the size and form of a small carraway seed, only that the surface is so exceedingly smooth, that, under a high magnifying power, I could not detect the slightest puncture or reticulation. Supposing the egg in question to have been deposited on the day that I discovered the nest, the larvæ appeared on the tenth.

Chancing to meet with a bank in which was a large colony of *Colletes succincta,* I pulled down a portion of it, and found large quantities of their cocoons, some empty, some containing the bee fully developed, others the stores of pollen and honey recently collected. I filled a few boxes with the cocoons containing insects, and on examining them at home, in two of them I found a specimen of *Epeolus variegatus.* This little bee has long been considered a parasite, but I believe this is the first instance of its being found in the nest of another bee. More than two-thirds of the cocoons were empty which I found in the bank, or I might probably have discovered more of *Epeolus.* This is an instance of great disparity of resemblance between the bee and its parasite; and I think it will be found, that close resemblance is only to be met with, and is only apparently necessary, among the social bees, for there can be no want of opportunity for a parasite to deposit unobserved her egg in the nest of a solitary bee; whereas in the social species they would be sure of detection; and, consequently, a very close resemblance is frequently met with, apparently to aid them in fulfilling the purposes assigned to them: as in the instance of the different species of *Apathus* parasitic upon *Bombus*, and also in the *Diptera* frequenting their nests.

VI. *Descriptions of some new Coleopterous Insects from the Philippine Islands, collected by* H. Cuming, Esq. *By* G. R. Waterhouse, Esq.

[Read 5th April, 1841.]

Section LAMELLICORNES.

Sub-section *Melitophili*, Latreille.

Genus MYCTERISTES, Laporte. (Insectes, ii. p. 162.)

Mycteristes Cumingii.

Myct. viridis, nitore resplendente; elytris, pedibus, et corpore subtùs flavescente lavatis: corpore subtùs paulo pubescente; capite cornu erectum exhibente, (hôc caput quoad longitudinem æquante,) ad apicem latum et paulò emarginatum, posticè concavum, anticè tuberculo uno obsitum: thorace convexo, posticè angustiore quàm ad mediam, marginibus lateralibus pone mediam ferè rectis, anticè constricto, margine posteriore in medio paulo producto, anticè porrecto in cornu validum ad apicem bifidum, super caput impendente: scutello mediocri, triangulari, elytris longioribus quàm latioribus, posticè attenuatis, disco plano, apice sub-truncato: pedibus validis, tibiis scopulâ pilorum subtùs instructis et externè haud denticulatis, tarsis quàm tibiæ paulò brevioribus; unguibus permagnis.

Long. corp. 12½ lin.

Fœmina differt corpore minore, capite, thoraceque haud cornutis; pedibus mediocribus; tibiis anticis externè tridentatis; reliquis denticulo externo parvo, infra medium instructis; unguibus mediocribus.

Long. corp. 9½ lin.

Elytra in fœminâ quasi flavescentia aureo-viridi lavata apparent, suturis, et lineâ longitudinali prope marginem intensè viridibus.

♂ ♀ in Mus. Brit.

The present insect, in my opinion, is allied to the genus *Macronota*, and approaches most nearly to the *Macronota rhinophyllus* of MM. Gory and Percheron's Monograph,—a species which was originally described by Wiedemann (Zoologisches Magazin, Band ii. part 1, for 1833, p. 82) under the name *Goliathus rhinophyllus*. On the same insect M. Laporte founds his genus *Mycteristes*, and Mr. Mac Leay his subgenus *Phlistena*. The last-mentioned author agrees with MM. Gory and Percheron, and with myself, as regards its affinities. Beyond the differences pointed out between the *Goliathus rhinophyllus* and the true species of *Goliathus* by Mr. Mac Leay, I may observe that, in all the species of *Goliathus* I have been able to examine, I have found the process of the metasternum remarkably broad, and, in some, extended almost to the base of the anterior pair of legs, whilst in *Philistina*, or *Mycteristes*, this process is narrow, and but slightly prominent.

Though, however, the *Mycteristes Cumingii* approaches most nearly to the *G. rhinophyllus*, there are several points of distinction worthy of notice, and which perhaps might be regarded as subgeneric,—in which case I should propose that the name *Phædimus** be applied,—the horn on the head and that on the thorax in *M. Cumingii* are much stouter ; that on the head is shorter, and has a protuberance in front, and that on the thorax is distinctly forked at the extremity, and is perfected with a flattened projecting process beneath : the legs are stouter—(I am comparing the males together)—and the anterior tibiæ are not notched externally; the tarsi are shorter, and the claws are much longer, and there are no brushes of stiff hairs on the under side of the tibiæ,—these velvet-like pads are found on all the tibiæ (of the male only), and extend from the tip rather more than half-way towards the base.

The colouring of this insect is remarkably brilliant, and changeable according to the light; in one position it presents a splendid golden-green tint, in another it presents a yellow cast, and appears, as it were, washed with golden green : this yellow hue however is not observable on the head and thorax, whilst on the other hand it is most conspicuous on the thighs and tarsi. In these latter I find all the joints tipped with blackish, and with a spot of the same colour on each side ; the tibiæ of the female are deep green, excepting at the tip, where a yellowish hue is observable; the tarsi are also deep green, but the terminal joint of those of the hind legs has the apical half yellow. The thorax and scutellum are smooth, the elytra are covered with minute confluent punctures; the body beneath is thickly punctured, and covered nearly throughout with minute, decumbent, yellow hairs.

The head is thickly punctured in the female, and the clypeus is distinctly emarginated; the thorax is also distinctly punctured; on the disc, however, there are but few of these impressions; an impressed line runs parallel with, and close to, the lateral margins, and near this line are a few indistinct reddish spots; some scattered hairs are observable on the margins of the thorax, and there are a few on the upper surface, and likewise on the elytra.

Genus Lomaptera, Gory and Perch.

Sp. 1. *Lomaptera cupripes.*

Lom. viridis ; elytrorum marginibus, pedibusque cupreis.
Long. corp. 14—15 lin. ; lat. 6—7 lin.
Hab. apud Insulas Philippinenses.
In Coll. Waterh., Mus. Brit. &c.

This appears to approach very nearly the *Lomaptera valida* (Chevrolat) of MM. Gory and Percheron's Monograph, but the club of the antennæ is black, and not yellow, as in that species. The general colour of the insect is deep green ; the anterior external angle of the elytra, as well as the outer margins and the legs, are of a copper colour ; the body beneath, the clypeus, and the basal joint of the antennæ, are sometimes of the same tint ; the remaining joints of the antennæ and the palpi are black.

The clypeus is deeply cleft, and thickly punctured, excepting in the middle. Thorax attenuated in front, slightly produced in the middle of the lateral margins, but broadest behind ; the anterior margin is also slightly produced in the middle, and the anterior angles are obtuse ; the posterior angles are acute ; the produced posterior portion of the thorax, which nearly hides the scutellum, is nearly in the form of an equilateral triangle, but with the apex slightly rounded ; the sides of the thorax are thickly punctured, but the disc is smooth : the apical portion of the elytra is thickly covered with exceedingly minute waved rugæ,—like scratches made by a sharply pointed instrument,—and so are the terminal segments of the abdomen : the sternum is rather coarsely, but not thickly, punctured, and there are numerous distinct punctures on the abdominal segments, some of which form a transverse line.

Sp. 2. *Lomaptera nigro-ænea.*

Lom. nigro-ænea ; corpore subtus, antennis pedibusque nigris.
Long. corp. unc. 1 ; lat. 5⅔ lin.
Hab. apud Insulas Philippinenses.
In Coll. Waterh., Mus. Brit. &c.

Like the *L. cupripes* in form, but of a smaller size, and æneous-black colour ; the clypeus is rather less deeply notched, but punctured in the same way, and so are the sides of the thorax, and on the apical portion of the elytra, and terminal segment of the abdomen, there are similar minute rugæ, and two short striæ running from the tip of the elytra parallel with the suture. The abdominal segments are impunctate in one of the specimens before me,* but in the other there are punctures on these parts, but they are not so numerous as in *P. cupripes;* the sternum is less distinctly punctured.

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* The same specimen has the abdomen of a pitchy colour.

I have examined numerous specimens of this and the preceding species, and have always found the difference of size and colouring combined.

Genus Macronota, Wiedemann.

Sp. 1. *Macronota Philippinensis.*[*]

Macr. nigra; antennis, palpis, tibiis, tarsisque piceo-rubris; capite lineis duabus, thorace lineis tribus, scutello nec non, elytris maculis quinque lineisque duabus, auratis.

Long. corp. 8$\frac{1}{3}$ lin.

Hab. ad Insulas Philippinarum. In Mus. Brit. &c.

This species is larger, and proportionably broader, than the *Macronota regia* of MM. Gory and Percheron. Its general colour is dull black. In the specimen before me the prominent parts of the thorax and elytra are glossy, but this is probably produced by rubbing. The upper surface of the head and clypeus is thickly punctured, and presents two longitudinal golden yellow lines; the space between these lines is slightly elevated, especially on the hinder part of the head. The thorax is but slightly broader behind than in front; the anterior and lateral margins are rounded, and the posterior margin is sinuated on either side; the disc is longitudinally depressed; the depression is deep behind; the upper surface is thickly punctured, and covered with minute black hairs, excepting in the parts which are coloured yellow, these consist of a broadish central mark, and a narrow line running parallel with and close to the lateral and anterior margin of the thorax. The elytra are somewhat suddenly contracted behind the shoulders, and slightly attenuated behind; they are dull black, thickly but finely punctured, depressed in the region of the scutellum, and have the disc nearly flat, and the shoulders prominent. The scutellum is yellow, and there is a transverse narrow mark of the same colour on the base of each elytron, this mark touching the scutellum; on a line with the tip of the scutellum, and but little removed from the suture, are two reddish patches; besides these, the elytra present five golden yellow spots,—a transverse spot on the suture, about midway between the base and apex of the elytra, and four lateral spots, two on each side and not very far removed from the central one,—and behind these are two lines running parallel with and close to the

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[*] This is certainly the *Macronota auro-guttata*, described, since this paper was read, by Burmeister, in the third volume of his Handbuch, p. 323.

suture; these lines do not quite extend to the apex of the elytra, but near this part they suddenly diverge: on the sides of the abdomen above are four yellow spots, and on the terminal segment there is one largish round spot of the same colour. There is, moreover, a patch of yellow on each side of the prothorax beneath, and the remaining parts of the body beneath present six largish transverse spots on each side. The femora are black, excepting at the apex, and on the upper surface of the apical half, where they are of the same reddish colour as the tibiæ and tarsi, and, I may add, the tip of the clypeus, the antennæ and palpi.

Sp. 2. *Macronota nigro-cærulea.*

Macr. nigra, nitida, indistinctè cæruleo-tincta.
Long. corp. 1 unc. 1 lin.; lat. 6 lin.
Hab. ad Insulas Philippinenses.
In Coll. Waterh., Mus. Brit. &c.

This species is remarkable for its uniform bluish black colour; it is rather larger than the *Macronota Diardii* of MM. Gory and Percheron's Monograph, the head is rather shorter and the clypeus is wider—broadest in front, where it is not very deeply emarginated; the upper surface is thickly punctured: the thorax is narrower than in *M. Diardii*, the lateral margins are nearly parallel, it being but slightly broader behind than in the middle, and on the fore part it becomes somewhat suddenly contracted; the posterior angles are acute, and the hinder margin is produced in the middle in about the same degree as in *M. Diardii;* the central portion is but slightly depressed, and, unless with a powerful lens, no punctures are visible; on the lateral margins, however, there are distinct confluent punctures: the elytra are broader than in *M. Diardii*, less attenuated posteriorly, and suddenly contracted behind the shoulders, as in that species; the shoulders are very prominent, and in the region of the scutellum the elytra are much depressed; towards the outer margins are some faint punctures and rugæ, and the other parts are smooth—at least, but few very minute punctures are visible: the scutellum is much larger than in *M. Diardii*, and concave in front: the body beneath is smooth; the anterior tibiæ are broader than in the species just mentioned, and are tridentate externally.

Genus Xylotrupes, Hope.

Xylotrupes pubescens.

Xyl. nigrescenti-fuscus; et suprà et infrà pilis decumbentibus vestitus; capite cornu ad apicem bifido, paulò recurvo;

thorace anticè in cornu robusto et elongato antrorsum ducto, ad apicem bifido-armatis.

Hab. ad Insulas Philippinenses.

In Coll. Waterh., Mus. Brit. &c.

This species is closely allied to the *Sc. Oromedon;* but is remarkable for being covered with a silky pubescence.

Genus Eucheirus, Kirby.

Eucheirus quadrilineatus.[*]

Euch. obscurè nigro-æneus; thorace punctulato; elytris lævibus, lineis quatuor fusco-flavescentibus ornatis; corpore subtùs pilis fuscis instructo.

Long. corp. (♀), 2 unc. 5 lin.; lat. 1 unc. 2½ lin.

Hab. ad Insulas Philippinenses. In Mus. Brit.

Description.—Head of a dull bronze colour above, subquadrate, but rather broader behind than before; clypeus somewhat concave above, the anterior margin presenting a slightly waved, but nearly straight, line; upper surface minutely punctured; antennæ black, the club pitchy. Thorax also of a dull bronze colour above, rather narrower than the elytra; 11½ lines broad, 7 lines long; the sides rounded, the broadest part rather behind the middle, and the fore part contracted; upper surface very finely punctured; a considerable space on the hinder half of the thorax in the middle is nearly destitute of punctures, and slightly glossy; on the disc are two joint depressions, and at some little distance from the lateral line, and situated on the hinder half of the thorax, are two slightly marked longitudinal depressions; the hinder margin is slightly produced in the region of the scutellum, and the hinder angles are obtuse. The scutellum is of moderate size. The elytra are blackish-green, or deep bronze colour, slightly glossy, without striæ or punctures; 1 inch 7½ lines long, and but little dilated in the middle: a broad yellowish brown band runs from the base of each elytron nearly parallel with the suture, and extends almost to the apex, where it is joined by a second mark of the same colour, which runs parallel with, and near, the outer margin, but is not continued quite to the base of the elytron. The under parts of the thorax, and the sternum, are densely covered with brown hairs; the abdominal segments are of a bronze colour, and slightly pubescent at the sides. The thighs are very

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[*] Since this paper was read the male of the present species has been described by Dr. Burmeister in Germar's Zeitschrift (iii. p. 227), under the name *Euchirus Dupontianus.* A beautiful figure of the same insect has likewise been executed for Burmeister's "Genera Insectorum," but it has not yet been published.

stout—especially the posterior pair—black, with an obscure bronze tint; the tibiæ and tarsi are black: the anterior tibiæ are broad, 8 lines long, strongly quadridentate externally, and with two small dentations near the base; the tibiæ of the middle and posterior legs are beset with numerous stout and sharply pointed spines—these are chiefly confined to the upper and outer surface; the posterior tibiæ are much dilated at the distal extremity, where there are four stout spines: the tarsi are about equal in length to the tibiæ from which they spring: the claws each present a double hook. The terminal segment of the abdomen is furnished with two conspicuous tufts of reddish hairs.

The specimen from which the above description is taken is a female, and, as might be expected, does not present the peculiar character from which the *Scarabæus longimanus* received its name; its anterior tibiæ and femora are, in fact, not more elongated than most other species of the section. In general appearance (the colouring excepted) the present insect so resembles the *S. longimanus*, that Mr. Melly, to whom it was shown, at once pronounced it the female of one of that group, and, upon a careful examination, I have found his opinion correct. The structure of the middle and posterior pairs of legs is the same, and it moreover possesses the doubly hooked claw (or it may be described as having a hooked spine on the under side of the claw), which is one of the characters upon which M. Laporte founds his genus *Parropus*, the type of which is the *Scarabæus longimanus*.

Section LONGICORNES.

Family SAPERDIDÆ.

Genus Doliops,* Nov. Gen.

Caput quàm thorax angustius, paulò productum et posticè cylindraceum: *oculi* reniformes: *palpi* mediocres, articulis terminalibus oblongo-ovatis, et subtruncatis: *antennæ* 11-articulatæ, breves et graciles; articulo basali elongato; secundo brevi; tertio perlongo, et ad apicem dilatato; articulis reliquis mediocribus.

Thorax subglobosus, postice constrictus.

Elytra perbrevia, valdè convexa, humeris prominulis.

Pedes paulo grandes, femoribus in medio crassescentibus, tibiis latis, compressis; tarsis brevibus, latis.

Doliops curculionoides.

Dol. obscurè viridi-ænea, indistinctè cærulescente relucens;

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* Δολιος, deceitful, and Ωψ, the face, aspect, &c.; from the circumstance of its having the face or aspect of a group to which it does not belong.

palpis nigris; antennis articulis tertio et sequentibus griscescentibus, ad apicem nigris; capite lineâ albâ longitudinaliter notato; elytris quatuor-decim guttis flavescenti-albis adspersis; maculis eodem colore corpus subtùs ornantibus; tarsis cinereis, articulo terminali nigro.

Long. corp. 5½ lin.; lat. 2½ lin.

Hab. ad Insulas Philippinenses. In Mus. Brit.

This insect has more nearly the aspect of some of the *Curculionidæ* than of any of the species of its own group; its resemblance in size, form and colouring to a certain species of *Pachyrhynchus*, which Mr. Cuming found in the same locality, is remarkable.

The head is vertical, rather small and narrow; the labrum is rather broader than long, and slightly emarginated in front; the palpi are moderately large and long; the middle joint of the maxillary palpi is rather shorter than the other two, and the terminal joint of both maxillary and labial palpi is the largest; this joint is slightly swollen in the middle, and truncated at the apex. The antennæ are somewhat approximated at the base, very slender, and, when bent backwards, do not quite extend to the apex of the elytra; the basal joint exceeds either of the other joints in length, excepting the third joint, and is but slightly stouter; the second joint is very short; the third is very long, being about equal to the three following joints taken together, and very nearly twice as long as the first joint, it is slender at the base, but compressed and considerably dilated at the opposite extremity; the fourth joint is shorter than the first, but longer than either of the following joints, which are nearly equal to each other, but diminish slightly in length towards the apex of the antenna. The eyes are very deeply emarginated internally, and encircle the base of the antennæ. The thorax is broader than the head, but scarcely more than half the width of the elytra; its length and width are about equal, and its form is nearly globose; close to the anterior margin is a transverse groove, and the hinder part is distinctly constructed and cylindrical, and presents a slight transverse groove close to the hinder margin, and a second, deeper, transverse groove in front of this. The elytra are nearly ovate, very convex, about one-fourth longer than broad, slightly rounded at the apex, and have the humeral angles somewhat prominent. The legs are long and stout; the femora are distinctly incrassated near the middle; the tibiæ are compressed, and there is a faint denticulation on the outer side of the middle pair, as we observe in *Dorcadion*, *Colobothea*, &c.: the tarsi are broad.

The general colour is brassy-green: on the upper surface of the head is a longitudinal yellowish-white stripe; the thorax has two small dots of the same colour situated in front and towards the sides, and, on either side, just above the base of the femur, is a large round spot: on the elytra are fourteen nearly equidistant round spots; two of these are situated near the scutellum (which is of moderate size and somewhat rounded behind), four on the disc of the elytra, two towards the apex, and three on each side near the outer margin: a spot is observable on each side of the meso- and meta-thoracic segments beneath, and of the abdominal segments; the first abdominal segment has two additional quadrate spots—all these spots are formed of yellowish-white scales, which have a faint metallic lustre. The first and second joints of the antennæ are brassy-green; the third is black, but with a greyish pubescence beneath; the fourth is greyish, tipped with black, and the following joints are brownish. The thorax is nearly smooth above, but under a strong lens exhibits numerous very minute punctures; on the sides are some distinct punctures, and these parts are clothed with minute decumbent hairs—perhaps the upper surface may have been covered with similar hairs, which in the specimen before me have been rubbed off. The elytra are punctured, and the punctures are most deep and most abundant on the fore part.

The short ovate body of this insect would at first lead one to suppose it allied to the *Dorcadions;* but in the form of the head, the slenderness of the antennæ, and structure of the legs, it appears to me to approach more nearly to certain *Saperdæ*, and especially to the genus *Colobothea*, where the antennæ are approximated at the base.

Doliops[*] *geometrica.*

Dol. splendidè viridi-æenea; capite lineis tribus, harum unâ interoculari, unâ utrinque suboculari; thorace lineis marginalibus, et suprà lineis tribus (unâ abbreviatâ), notato; elytris lineis duabus transversis mediam versus, ad basin areâ transversâ irregulari, ad apicem areâ triangulari, lineis pallidis circumdatis: omnibus lineis squamis albis effectis: antennis articulis tertio et sequentibus ad basin rufescentibus.

Long. corp. $6\frac{1}{3}$ lin.

In Mus. Brit.

This species presents all the essential characters of the type of the genus *Doliops* (*D. curculionides*), and greatly resembles that insect in size and form; but the thorax has marks, or lines, instead of spots. Its colouring is more brilliant.

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[*] This genus is characterized in the Proceedings of the Entomological Society of London for April, 1841, p. 27.

VII. *On the Linnæan Species of* Staphylinus, *a Genus of Coleopterous Insects. By* J. O. WESTWOOD, F.L.S. &c.

[Read 5 Oct. 1840; 1 March, 1841.]

MY attention having been directed by Dr. Erichson of Berlin (the author of a very valuable work upon the family *Staphylinidæ*) to several of the species of that family described by Linnæus, and preserved in the Linnæan Cabinet of Insects, with the view of clearing up the synonymy of such species, I have extended my examination to the whole of the twenty-six species described by the great Swede, including several species in addition to those of which Dr. Erichson requested my opinion.

Sp. 1. *Staphylinus hirtus* is the *Emus hirtus* of Leach; *Staphylinus hirtus* of most continental authors.

Sp. 2. *Staph. murinus* is a species of *Staphylinus* (subgenus *Trichoderma,* Steph.) The Linnæan specimen is nearly ¾ of an inch long ("Insectum inter majores, non maximos," Linn.) It is the *St. murinus* of Olivier, 3, 15, pl. 6, fig. 51, 6, and Panzer, pl. 66, fig. 16. By Fabricius, and all other English and foreign authors, it is given under the name of *Staph. nebulosus,* Fabr. The *Staph. murinus* of Fabricius, Marsham, Stephens, Erichson, &c., is a smaller species. De Geer has confounded both under his first species of *Staphylinus,* but has figured the true *St. murinus.*

Sp. 3. *Staph. maxillosus.* Under this name Linnæus confounded two distinct species, namely, the *Creophilus maxillosus* of Kirby, and the *Gocrius olens* of Leach. From the short specific character given in the F. Su. and the Syst. N. it would appear that Linnæus intended the former insect as the type of the species; but the description given in the former work, "Hic maximos inter nostros est.—Elytra atra in quibusdam cineritie lævi nebulosa," as well as the figure of Geoffroy and description of Ray, referred to by

Linnæus, show that *G. olens* was the insect he had chiefly in view. In the Systema Naturæ, however, he endeavoured to get over the difficulty by stating, "*Junior* undique tomentosus per elytra et abdomen cum fascia cinerea elytrorum et abdominis. *Provectior* glaber et totus ater evadit." Hence Gravenhorst supposed that Linnæus could not have known the species figured by Geoffroy (*G. olens*), which appears to be rare in Sweden; but that the individual which he considered as *Provectior* was an abraded *C. maxillosus*. This opinion, which Mr. Shuckard has recently reiterated, (El. Brit. Ent. p. 116,) and which seems supported by the Linnæan character, "glaber et totus ater," a character which far better agrees with an abraded *maxillosus* than an ordinary *olens*, is nevertheless incorrect, there being no abraded specimen of *maxillosus* in the Linnæan Cabinet; whilst an ordinary specimen of *maxillosus*, and one of *olens*, are both stuck through the Linnæan label,* the latter placed first.

Sp. 4. *Staph. erythropterus*. This species has been regarded by Fabricius and most subsequent authors as composed of those large specimens of *Staphylinus*, with red elytra and legs, which have the hind margin of the prothorax golden coloured, and the scutellum black. The expression of Linnæus, "Est inter majores, non maximos numerandus," is in favour of this opinion, these individuals being larger than any of the allied species. The antennæ of these insects are however red at the base and brown at the apex, whereas Linnæus says, "Antennæ nigræ basi et apice rufescentes;" which character, in conjunction with an entirely black prothorax and golden scutellum, is found in the *St. castanopterus* of Gravenhorst and Gyllenhal. Dr. Erichson accordingly gives the latter species as the true Linnæan *St. erythropterus*, and the *St. erythropterus* of Fabricius and most other authors under the name of *St. cæsareus* of Cederheim. The typical Linnæan specimen however, being that which is stuck through the ticket in the handwriting of Linnæus, is of the largest size, with a golden posterior margin to the thorax. The antennæ are brown, with the base alone red. There are two specimens agreeing in these characters placed side by side, and a third specimen is added, which, however, has the prothorax entirely black, and the scutellum golden coloured, or the *St. castanopterus*.

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* Another insect is also stuck through the Linnæan label agreeing with the typical specimen in size, but having the disc of the thorax destitute of the two rows of impressed punctures.

Sp. 5. *Staph. politus.* Under this name Linnæus confounded several distinct species of the genus *Philonthus* of Leach, regarding them as varieties of the same species. On referring however to the Linnæan Cabinet we find that the only individual which agrees with his observation, "Differentia specifica essentialis consistit in thorace decem punctis excavatis, sed vix absque lente conspiciendis," is the specimen, the pin of which is stuck through the specific label, and which appears to me to be identical with the *Staph. æneus* of Gravenhorst, Gyllenhal and Erichson. It is nearly five lines long. The head is large and square, with the sides deeply punctured behind the eyes; the anterior margin of the head has a large central impression, with a much smaller one on each side half way between it and the eyes; the inner and anterior angle of the eyes having one deep and several smaller impressions. The disc of the thorax has two posteriorly diverging rows of five punctures on the anterior part of the disc, the two anterior ones being close together on the anterior margin of the thorax; the first of these two being placed nearer to the lateral angles, and not strictly forming one of the longitudinal series of punctures. The insect thus agrees with the Linnæan character quoted above, whilst at the same time it must be referred to Gyllenhal's 3rd subdivision of the genus, "thoracis seriebus dorsalibus 4-punctatis;" although, were not this explanation given, it would appear to belong to his 4th subdivision, "thoracis seriebus dorsalibus 5-punctatis." The antennæ are entirely black, as are also the legs. This description will be seen to accord with Gyllenhal and Erichson's description of *St. æneus*, except that they do not mention the large impressed puncture in the middle of the front of the face.

The *Staph. politus* of the Swedes and Germans is quite distinct, having an oval head with the basal joint of the antennæ red beneath. Mr. Stephens, in his catalogue, gives the *Staph. politus*, "*Mus. Linné*," under the name of *St. puncticollis*, Kirby,* as identical with the *æneus* of Gravenhorst, and *similis* of Marsham; but in his Illustrations he describes it as having the head broad and orbiculate, which will not agree with the Linnæan specimen. He moreover describes another species, placed next to the *puncticollis*, under the Linnæan name of *politus*, but having the head ovate and narrower than the thorax. He adds, indeed, that the head is smaller in one sex: but surely as the form of the head in this genus constitutes one of the chief specific characters, he would have recorded the square form of the head in some of the specimens of his two species did they possess such a character, which is indeed so strongly conspicuous in the Linnæan specimen. He also describes the antennæ of his *St. politus* as having black antennæ. In this character it therefore differs from the *politus* of the Germans and the Swedes, although they, as well as Stephens, give the same references to Linnæus, Marsham and Olivier.

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* Mr. Kirby has rejected the name of *politus* for the species retained in "Mus. Linné," as well as that of *æneus*, given to it by Gravenhorst, the latter name having been previously used by De Geer for a species of this genus closely allied to, if not a variety of, the *St. laminatus* of Creutzer.

The *Staph. politus* of De Geer is given by Erichson as identical with *Ocypus fuscatus.* The *Staph. politus* of Panzer (27, fig. 7) belongs to Gyllenhal's sixth section of *Staphylinus,* or *Philonthus,* "Thoracis seriebus dorsalibus multipunctatis." It is identical with the *Staph. punctus* of Gravenhorst, Gyllenhal and Erichson —*multipunctatus,* Mannerheim. The *Staph. politus* of Paykull is a still different species.

Sp. 6. *Staph. rufus* is the *Oxyporus rufus* of Fabricius, and all other subsequent authors.

Sp. 7. *Staph. lunulatus* is a species of Leach's genus *Bolitobius,* and has been considered by Gravenhorst, Gyllenhal, Erichson, Stephens, &c. to be the species which has the entire base of the elytra, as well as the scutellum, of a pale rufo-testaceous colour; the allied individuals with a blue-black scutellum, and a basal lunule on the elytra, being considered as a distinct species, under the name of *B. atricapillus,* by Fabricius and most subsequent authors. By Panzer, however, (F. I. G. 22, fig. 15,) and Zetterstedt, (Faun. Lapp. 1, 65, 10, and Ins. Lapp. 58, 11,) the latter individuals are figured and described as the true *St. lunulatus,* whilst the *lunulatus* of Gravenhorst, &c. is given as the *atricapillus,* Fab.; Zetterstedt observing of the former (*S. lunulatus,* Pz.) "Nomen triviale notis magis conveniens nec non frequentia individuorum (saltem in Suecia media et meridionali) affirmare videntur hunc esse illam ipsam speciem quam spectat Ill. à Linné, licet ejus descriptio brevis et manca sequenti seu *Tach. atricapillo* nostro [*lunulato,* Fab.] etiam adaptari possit: sed hic in Suecia perrarus forsitan a Linnæo non cognitus." In support of this observation the Linnæan specimen belongs, as indeed the specific name itself sufficiently indicates, to the species with the pale lunule at the base of the elytra.

Sp. 8. *Staph. riparius* is the *Pæderus riparius* of Fabricius and all other authors.

Sp. 9. *Staph. obtusus* is a species of *Tachyporus*, as indicated by Gravenhorst, Stephens and Erichson; the last of whom gives it as synonymous with *Oxyporus analis*, Fab. Stephens also gives the latter as a variety of it. In the Linnæan specimen the head and abdomen are yellow, and the black base of the elytra does not extend more than two-fifths of the length of those organs.

Sp. 10. *Staph. lignorum* appears to have been overlooked by all subsequent authors, except Mr. Hope, who considers it to be a species of *Tachyporus* (Coleopt. Man. 3, p. 57). The Linnæan specimen is however a species of *Tachinus*, of the size of *T. subterraneus*, being 2½ lines long, with the head black; the antennæ fuscous; the thorax castaneous, with two small discoidal dark spots wide apart beyond the middle of the disc, and the lateral margins paler; the elytra luteous, with the suture darker; the abdomen brown, the margins of the segments, and the large terminal segment, paler luteous-brown, except the latter, which is darker towards the base; the feet are luteo-fulvous.

It is difficult to conceive that this description can agree with that given in the Fauna Sueceia, in which we read "Corpus totum lineare longiusculum;" but the further character, "Thorax versus elytra duobus punctis excavatis notatus," as well as the colours of the elytra, evidently and satisfactorily prove that the specimen still preserved in the Linnæan Cabinet, and from which the above description is drawn, is the true Linnæan species.

Sp. 11. *Staph. Silphoides* is also a species of *Tachinus*, synonymous with the *T. suturalis* of Gravenhorst and Panzer (18, fig. 20). The Linnæan specimen has the discoidal mark on each of the elytra of a reverse pear-shape, the major part of the elytra being fulvous.

Sp. 12. *Staph. subterraneus* is also a species of *Tachinus*, as correctly indicated by Gravenhorst, Stephens and Erichson. The specimen preserved in the Linnæan Cabinet is 2½ lines long. It exactly accords with the Linnæan description, although the specific ticket is in the handwriting of the younger Linnæus.

Sp. 13. *Staph. flavescens* is a species which all recent Entomologists have failed in recognizing. Fabricius gives it as identical with his *Staph. flavescens*, which, according to Gyllenhal and Erichson, is a species of *Philonthus*, namely, *Ph. discoideus*. The former of these authors observes upon the last named species,

" *St. flavescens* cl. Fabricii certe huc pertinere videtur, sed cl. Linnæi ejusdem nominis minime idem" (Ins. Suec. 2, 332); and Gravenhorst says of the Linnæan insect, " similis *Staph. subterraneo*," evidently borrowed from the Linnæan expression " priori [*subterraneo*] similis ;" but Linnæus adds, " sed quadruplo minor—abdomen fere subulatum." Its size must have been very minute, for it is described as " inter omnes nostros minimus utpote qui pulicem non excedit."

There is no specimen of the insect in the Linnæan Cabinet, so that it is now impossible to determine it with any degree of certainty.

Sp. 14. *Staph. elongatus* is a species of *Lathrobium:* in which genus there are three closely allied species, *St. elongatus*, L., *S. fulvipennis*, Grav., and *L. rufipenne*, Gyll., in all which the elytra are of a red colour, with the base black. These three species differ chiefly from each other in the form of the head and thorax, and in the under side of the penultimate segment of the abdomen of the males. The Linnæan specimen is a female, and appears to be identical with the *Lathr. elongatum* of Erichson, and probably of Stephens, being 4 lines long. The last named author, it is however to be observed, in describing *L. elongatum*, adopts the description given by Gyllenhal of his *L. elongatum ;* but Dr. Erichson has shown that Gyllenhal's description does not apply to his insect, Gyllenhal's *L. elongatum* being one-quarter or even one-half of the size of *L. brunnipes*, which is also 4 lines long, according to Erichson as well as Stephens; neither does the form of the penultimate segment of the abdomen of the males accord.

Sp. 15. *Staph. biguttatus.* This species is a *Stenus*, but the Linnæan character is so short that it will equally suit any one of the species which have a pale fulvous spot on the elytra. The hind legs (which are entirely black) and the abdomen are all that remain of the Linnæan specimen. The abdomen is the same size as that of *St. bipustulatus*. Gyllenhal doubtingly gives *St. biguttatus* of Linnæus as identical with *Dianous cærulescens*, and immediately after gives the *bipustulatus* of Linnæus and Marsham under the name of *biguttatus* of Fabricius, Grav., Pz., and Oliv. Erichson, on the contrary, gives the *biguttatus* of these last mentioned authors as identical with the *biguttatus* of Linnæus, omitting the *bipustulatus*. Stephens, however, omits the reference of *bigut-*

tatus of Linnæus, but gives the *biguttatus* of Gravenhorst, and the *bipustulatus* of Linnæus, as distinct species.

Sp. 16. *Staph. bipustulatus.* No specimen of this insect is unfortunately to be found in the Linnæan Cabinet. The Linnæan description however, although very short, seems sufficiently to prove that it is a species of *Stenus*, " corpus valde oblongum, magnitudine minoris pediculi, antennæ clavatæ," as well as the circumstance of Linnæus bringing that and the preceding into juxtaposition in his latest work. In the uncertainty necessarily resulting from the loss of the Linnæan specimen, it would be useless to attempt to decide upon the precise species of spotted *Stenus* to which the description was intended to apply. By Marsham, followed by Curtis and Stephens, it is given as a distinct species of *Stenus.* By Gyllenhal and Zetterstedt it (as well as the *S. bipustulatus* of Ljungh) is referred to the *St. biguttatus*, Fab., (*Juno b.* of Paykull,) which our English authors give as distinct. Fabricius describes a very different insect to this under the same name, *S. bipustulatus*, which belongs to the genus *Philonthus*, and which is figured by Panzer (27, 10). I mention this because Mr. Stephens has accidentally referred to this figure under the *Stenus bipustulatus.*

Sp. 17. *Staph. Cantharellus.* This insect is also wanting in the Linnæan Collection. It appears to have been entirely overlooked by subsequent authors, except Mr. Hope, who says of it, "probably a *Stenus*, or a genus closely allied to it." The words of Linnæus, however,—" simillimus *Cantharidi biguttatæ.* Elytra abdomine dimidio breviora, mollia, fusco-glaucescentia, apice puncto flavo. Abdomen molle, glaucum,"—evidently prove that this insect does not belong to the *Brachelytra*, but rather to the genus *Malthinus.* Its size is said to be " pediculo ½ minus."

Sp. 18. *Staph. littoreus* is a species of the genus *Conurus Steph.*, and identical with *Oxyp. cellaris*, Fab., Grav., Gyll., as correctly indicated by Erichson, who has collected numerous other synonymes in his later work. It is proper, however, to observe that Mr. Stephens had first suggested the identity of the two species in his catalogue, and that Mr. Curtis has subsequently published a beautiful figure of the insect, with its Linnæan name, in his British Entomology, pl. 762.

Sp. 19. *Staph. sanguineus.* By Fabricius, and almost all succeeding authors, this insect is regarded as one of the *Pselaphidæ*, belonging to Leach's genus *Bryaxis*, whilst Gyllenhal's (Ins. Suec. 4, 232) description and reference assign it to the *Tyrus mucronatus* of Aubé; and to add to the confusion, Panzer figures a red species of *Euplectus* with a black head, with the same name and reference, although Linnæus expressly says, "totus ater glaber, exceptis elytris sanguineis." The Linnæan specimen, however, belongs to the sub-family *Aleocharides* and genus *Aleochara*, being closely allied to *A. fuscipes*. Mr. Kirby, in his manuscripts upon this family, communicated to Mr. Stephens and incorporated by him in his catalogue and illustrations, had noticed this circumstance, and restored the specific name to the species, under which it is described by Mr. Stephens (Ill. Mand. 5, p. 160). It appears to be identical with the small specimens of *Al. mitis*, Grav., mentioned by Erichson, (Gen. et Sp. Staph. i. 163,) as probably identical with the *Al. crassicornis* of Boisduval and Lacordaire, or with the *Al. rufipennis* of Erichson (Er. cit. p. 162, which is however distinct from the *rufipennis* of Kirby and Stephens). I possess a specimen of this insect from Mr. Haworth's Cabinet, which had been compared by Mr. Kirby himself with the Linnæan specimen of *Sp. sanguineus*, and to which is also attached the name *Al. lugens*, G., as a synonym. Mr. Stephens has also given that species as belonging to the same group of *Aleochara* as the *Al. fuscipes* and *sanguinea*. Dr. Erichson, having introduced *Al. lugens* into his genus *Myrmedonia*, evidently considers that Stephens and Kirby have erred in this respect; the maxillæ of my specimen of *sanguinea*, as I find on dissection, agree however with those of *Al. fuscipes*, whereas the maxillæ of *Myrmedonia* are very differently formed (Erich. pl. 3, fig. 21).

Sp. 20. *Staph. caraboides*, Linn., belongs to the genus *Lesteva*, Latr., and subgenus *Anthophagus* (as restricted by Dr. Erichson). There are two closely allied species which have been confused in their synonymes, namely, *A. caraboides* and *A. testaceus*. By Gravenhorst the species with a subcordate thorax is regarded as the *St. caraboides*, whilst that with a quadrate head is named *A. testaceus*. Messrs. Boisduval and Lacordaire, in the Faune Entomologique de Paris, have transposed these names; but Dr. Erichson has restored them, and with propriety, the thorax of the Linnæan specimen being evidently subcordate. The head can, however, scarcely be termed piceous, although considerably darker coloured than the thorax, which is bright testaceous; the elytra are paler, and the basal joint of the antennæ is paler than the following joints.

Sp. 21. *Staph. chrysomelinus* is a species of *Tachyporus*, closely allied to *Staph. obtusus*, Linn., respecting the specific identity of which there appears to be no diversity of opinion, although the label in the Linnæan Cabinet is in the handwriting of the younger Linnæus. The *Oxyporus melanocephalus* of Fabricius, and *Staph. merdarius* of Marsham, are to be considered as varieties of it.

Sp. 22. *Staph. flavipes* appears to have been lost sight of, or doubtfully treated by, subsequent Entomologists. Fabricius indeed gave this name and reference to a species which is identical with the *Omalium planum* of Gravenhorst, according to Dr. Erichson, who has carefully examined the Fabrician Collections (who observes on this synonym, "In Fabricius Sammlung befindet sich dieser Kafer als *Staph. flavipes:* ob der Linneische wirklich derselbe sei, geht aus Linne's Beschreibung nicht hervor, wenn dieselbe auch nichts enthalt was dem entgegen ware," Col. March, p. 637); whilst Mr. Kirby in his manuscripts gave it doubtingly as a species of *Falagria* of Leach, (which reference Mr. Stephens —Catal. p. 260—and Mr. Hope—Col. Man. 3, 20—have also adopted). The Linnæan specimen (ticketed by the younger Linnæus) is however a species of *Tachyporus*, identical with the *T. hypnorum*, Fabr. (of which *T. marginatus* and *nitidulus* are evidently varieties). It is a line and a half long. The lateral and posterior margins of the thorax are pale, the pale colour being dilated at the posterior angles. The Linnæan description is silent as to these pale margins of the thorax.

Sp. 23. *Staph. fuscipes* is another species which, from the insufficient description given of it by Linnæus, has been hitherto overlooked or doubtfully treated by subsequent authors. By Fabricius a species of *Aleochara* was described under that name, reference being also made by that author (Syst. Eleuth. 2, p. 598) to Panzer's F. I. G. 27, fig. 12. The latter figure however represents a species of *Tachyporus* (*T. fimetarius*, Grav.). Hence the Fabrician species was also rendered doubtful; but Dr. Erichson has satisfactorily proved that the latter is that species of *Aleochara* known under that name. The Linnæan insect is however quite distinct from either of the above, upon which Erichson observes, "*Staph. fuscipes*, Linn., species dubia quidem est, at certe distincta a nostra. Thorace, capite et maxillis insignibus forte ad *Oxytelum* vel potius *Platystethum* quendam spectans." The Linnæan specimen, however, belongs to the genus *Gyrohypnus*, Kirby, (*Xantholinus*, Dahl.); and although Linnæus describes it as "pediculo fere major," his specimen is 3 lines long without the head, which is wanting. The thorax is long and black, slightly narrowed behind, with two discoidal rows of impressed dots (seven in each row), the lateral rows being sparingly punctured; the elytra are testaceo-luteous (fusca, Linn.), and the legs and coxæ entirely testaceous (" tibiæ flavescentes, non vero femora," Linn.) It appears to me to be identical with the *G. lentus*, Gravenhorst and Gyllenhal.

Sp. 24. *Staph. rufipes* is a species of the genus *Tachinus*, but the specific name has been applied to various allied species by Gravenhorst, De Geer, Olivier, Gyllenhal, Fabricius, and Stephens. The Linnæan insect is 2½ lines long, and is identical with the *T. pullus* of Gravenhorst, being, however, a variety of that species, with the entire anterior, lateral and posterior margins of the thorax, and the sides and apex of the elytra, pitchy red. Dr. Erichson has also ascertained that the *Oxyp. rufipes* of the Fabrician Cabinet is identical with *Tach. pullus*, Grav. The *T. rufipes* of Gravenhorst, Gyllenhal and Stephens is at once distinguished by the black base of the antennæ (which is red in the Linnæan specimen), and is the true *Oxyporus flavipes* of the Fabrician Cabinet according to Dr. Erichson (Kafer M. Brand. 1, 398).

Sp. 25. *Staph. piceus* belongs to the genus *Oxytelus*, as indeed all subsequent authors have determined, although there is much confusion in their works as to the precise species which is entitled to the specific name. The Linnæan specimen is a female 2 lines long, with the head considerably smaller than the thorax, and separated from it by a short neck. The sides of the thorax are entire and rounded, being slightly narrower behind than before the middle. Gyllenhal has very correctly described the peculiar sculpture of the thorax. I believe the *Oxyp. piceus* of the English Collections is a distinct species.

Sp. 26. *Staph. boliti* is a very minute species of *Gyrophæna*, being only half a line long according to Dr. Erichson, but is placed by Mannerheim in his genus *Bolitochara.* The former author has described two closely allied species under the names of *Gyr. boliti* and *minima*, but from the description of the antennæ he appears to have transposed the names; the third joint of the antennæ of the Linnæan specimens being the most minute, the fourth being rather smaller than the fifth.

VIII. *Description of a new Genus of* Lucanidæ *from New Zealand.*

By FREDERICK PARRY, Esq.

[Read 3 October, 1842.]

LAMELLICORNES.

Fam. LUCANIDÆ, *Leach.*

N. G. MITOPHYLLUS,* *mihi.*

Pl. I. fig. 4.

Characteres generici.

Forma Platyceri caraboides, at magis cylindricus, apice elytrorum rotundato.

Antennæ 10-articulatæ, parum geniculatæ; articulo 1mo longo incurvo, 2ndo minuto, quinque proximis gracilibus, 3tio 2do plus duplo-longiori, 4-7 longitudine gradatim decrescentibus, tribus ultimis, in masculo, singulatim elongato-filiformibus, et pilosis.

Caput magnum, inerme, fronte inter antennas impressum. ♀ minus.

Labrum parvum, quadratum, angulis anticis rotundatis, margine antico longe piloso.

Mandibulæ ♂ crassæ porrectæ, capitis longitudine, apice curvatæ et in dentem erectum supra productæ, basi externe angulato; ♀ minores elongato-triangulares, apice acutæ, denteque supero ante apicem armatæ.

Maxillæ parvæ, lobo externo laciniiformi longe setoso, lobo interno obsoleto.

Palpi maxillares 4-articulati, elongati, subfiliformes, articulo ultimo cæteris longiori, fere recto.

Mentum magnitudine mediocri, lateribus rotundatis, antice angustius.

Palpi labiales longi, 3 articulati, articulo ultimo longiori parum curvato.

Prothorax transverso-quadratus, lateribus parum rotundatis, fere latitudini elytrorum equalis.

Prosternum et mesosternum simplicia, haud producta.

Elytra elongata parallela, convexa, apice rotundata, punctata, setulosa.

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* *Mitophyllus*: from μιτος, filum, and φύλλον, a leaf, the terminal joints of the antennæ being like slender thread leaves.

Pedes longitudine mediocres, femoribus parum dilatatis, tibiis anticis externe subserratis et unispinosis, anticis et intermediis vix serratis, sed unispinosis.

Tarsi articulis subtus setosis, pseud-onychiis distinctis.

Observations.—The principal features of this new genus (which is closely allied to *Platycerus* of Lat.) consist in the remarkable structure of the antennæ and mandibles. The female differs considerably from the male, being of a more rotundate form, whilst the head and eyes are much smaller, and the mandibles scarcely visible; the laminæ of the antennæ, although consisting of the same number of joints, are not larger than ordinary in insects of this family. It seems probable that *Mitophyllus* in New Zealand takes the place of *Platycerus*. The above insect was captured by my friend Captain Best of the 80th regiment, at present in command of the troops at Port Nicholson, and to whom I am much indebted for several new and interesting species collected in New Zealand.

♂ *Mitophyllus irroratus*, Parry.

Rubro-piceus, maculis obscuris atris per totum corpus aspersis; mandibulis porrectis recurvis, antice acutis posticeque denticulatis. Antennæ foliis tribus ultimis singulatim elongato-filiformibus et pilosis. Thorax quadratus, immarginatus. Elytra thorace fere triplo-longiora, fusco-picea, rubescentia, punctata, maculis obscure atris per discum aspersis. Femora incrassata. Tibiis unispinosis, externe serratis. Corpus infra prosterno mesosternoque simplicibus haud productis.

Long. lin. 4½, lat. 1½.

Habitat in Nova Zelandia, apud Portum Nicholsoni.

Differt fœmina. Antennæ tribus ultimis foliis magnitudine mediocri; mandibulis parvis, non multo porrectis, ad basin unidentatis. Corpus et thorax magis rotundatus.

DESCRIPTION OF PLATE I.

Fig. 4, the male insect magnified; 4 *a*, the front of the head of the male; 4 *b*, the mandibles seen from the front; 4 *c*, one of the mandibles seen sideways; 4 *d*, the maxilla; 4 *e*, the mentum and labial palpi; 4 *f*, the fore foot; 4 *g*, the middle tibia; 4 *h*, the posterior tibia; 4 *i*, the head of the female from above; 4 *k*, the same from beneath; 4 *m*, and 4 *n*, the female mandibles in different positions.

IX. *On the means by which the Honey Bee finds its way back to the Hive. By* George Newport, F.R.C.S. &c. President of the Entomological Society.

[Read 6 February, 1843.]

Great difference of opinion has existed amongst naturalists as to the means by which the honey bee finds its way back to the hive it has left, and distinguishes its own residence from that of others. Some, most naturally, have believed that it is simply by the sense of vision; others, that it is by means of that of hearing, or of smell. Those who contend for the latter opinion have fancied that the bee is conducted by the odour of the flowers she has visited in her outward course:

> "*The varied scents that charmed her as she flew.*"

But this opinion is at once invalidated by the circumstance, remarked by Dr. Bevan, that when a bee is returning to its hive, its flight is usually in a direct line. Indeed every observer must have remarked that the bee, like the carrier pigeon, after it has taken its first circuitous flight of recognition, is led by an almost unerring instinct directly to its home. Yet it is much to be questioned, whether it is simply by what we term instinct,--a term which we cannot sufficiently explain or fully comprehend,—that these animals are directed in their course; or whether it does not chiefly depend on the perfection of one or more of their senses? One variety of the common dog will discover his master or his home by the sense of smell, but another, as the greyhound, simply by that of sight. All naturalists are aware that the sense of vision exists in the greatest perfection in vertebrated animals, in birds of flight, and such is the case in volant insects amongst the invertebrated. It is by means of this sense, the most perfectly developed of all the senses of insects, that the honey bee, as I am disposed to think, finds its way back to the hive, notwithstanding that some observations of naturalists seem to lead to a different conclusion. In order to put this opinion to the test of experiment, on the 11th of March, 1836, I removed one of my straw hives from the closed bee-house in which it had stood through the winter, to a stool in the open air, within sight of, but at a distance of about ten or fifteen yards from the bee-house. On the following day, the 12th, scarcely a bee went abroad, either from the bee-house or the removed hive; or from another straw hive which stood very near to it; the weather being exceedingly wet and boisterous. The 13th was a remarkably fine day, and many bees went abroad, both from the bee-house and from one of the straw hives, and returned loaded with pollen; but I did not observe even a single bee return to the straw hive that had been removed, and very rarely any depart from it. But although not a single bee returned to that hive, I frequently observed a few bees descending towards and alighting at the entrance hole in the bee-house from whence that hive had been removed. This entrance hole had been closed since the removal of the hive, and the bees collected around it made many attempts to enter, and were quickly in a state of great excitement. On opening the hole and allowing them to enter, they ran around the place on which the hive had stood in great agitation, vibrating their half-closed wings most rapidly, and touching each other repeatedly with their antennæ, as if in a state of frenzy. Two or three bees then issued from the entrance hole, and after taking a circling flight twice or thrice in the air, at some distance from the bee-house, as if to reconnoitre the spot, alighted again at the hole, and ran about within in the same state of consternation as before. After continuing in this state for some time they flew to the entrance hole of the hive which remained in the bee-house, but were very badly received. The bees of that hive resisted and maltreated them, and several fights ensued, in which the intruders were killed. It was thus evident that these bees belonged to the hive that had been removed, which, perhaps, they had left but a short time before, without reconnoitring the new locality of their residence,—which a bee seldom or ever appears to do when its hive has remained undisturbed on the same spot for any great length of time,—and, consequently, having never distinguished their home but by the exterior of the bee-house, they now returned directly to the spot where they had been accustomed to enter. This experiment seems to show that the bee is not conducted by the sense of smell, either of the honey or of the inhabitants of the hive, or it could hardly have been attracted to a spot from whence these were removed. Neither can we suppose that it was directed by the sense of hearing, or it could hardly have failed to recognize the sounds in its own hive, which stood at so short a distance; while the circumstance of its flying directly to the spot where it had formerly entered, and that of its leaving the entrance hole on finding the hive removed, and then flying around in the air as if to reconnoitre the bee-house, and alighting a second time at the same hole, seem to prove that the great faculty exercised by it in discovering its home is that of sight. This experiment seems also to explain why so few bees left the removed hive, those which had gone out not having returned, as Huber believes, to apprise the population that remained of the quantity of honey abroad, or of the favourableness of the atmosphere for collecting it.

One great anatomical fact which tends to support the opinion I am now advocating, that the bee usually finds its way back to the hive chiefly by the sense of sight, is the great extent to which the organ of vision is developed, and the peculiar fitness which the telescopic structure of the multitude of eyes of which the organ is composed possesses for viewing distant objects. Every one of the many thousands of lenses on the surface of the organ has been proved, by the researches of Müller, Straus-Durckheim, and others, to be the inlet to a distinct eye lined with its proper choroid and retina, or nervous expansion, to which the impression of the images of distant objects received by the lenslike cornea are conveyed. The distance at which objects are clearly distinguished by the insect is dependant chiefly on two circumstances:—the relative diameter and convexity of the cornea to that of the whole eye; and the length of the chamber from the cornea to the retina, or expansion of the nerve. Now these conditions vary in different insects, and seem to have much reference to their habits. In those species in which the cornea is of great breadth, and the length of the chamber, or distance from the cornea to the retina, is very short, as in some of the *Diptera*, the distance at which objects are distinctly observed is necessarily restricted; but in those in which the corneæ are numerous and small, and each forms on the surface a large segment of a circle, and the length of the chamber several times exceeds that of the breadth of the cornea, as in the bee, the distance of vision is greater in proportion to the length of the chamber, and the acuteness of the angle at which the rays of light impinge on the retina at its base. This, perhaps, may explain the reason why some of the corneæ on the inferior portion of the mass of eyes are of greater diameter, and have the chambers shorter than those of the upper and exterior surface; so that some of these corneæ have a greater sphere of vision, but a shorter focal distance; and thus are adapted for viewing near, as the others are more distant objects.

This structure of the organ of vision in the bee is entirely in accordance with the usual mode of proceeding of this insect, and illustrates the fact of the bees leaving the bee-house and flying around in the air as if to reconnoitre the spot; and also another fact, which has in part been observed by others, and which I have frequently witnessed, namely, that for the first few days after a swarm has been hived the bees seldom fly far, and each bee, on first leaving the new hive, usually makes several circuits around it in the air, at greater and greater distances, with its head constantly directed towards the hive, as if to reconnoitre the spot prior to its taking a distant flight.

These considerations lead me to the conclusion that it is chiefly by means of vision that bees and other insects find their way back to their homes.

P. S.—Since this paper was read to the Society it has been referred to the judgment of Dr. Bevan, the most accurate and philosophic of our practical English apiarians; and it gives me great pleasure to learn that the views which it contains are in entire accordance with those entertained by that distinguished naturalist. Dr. Bevan states, that most of the facts now adduced in support of the opinion, that the bee depends upon its visual organs to guide its unerring flight, he can confirm by repeated observations of his own; and he adds that, in conformity with this opinion, "it is my practice, if any occasion occur to induce me, to change the site of a family of bees in my garden, or to any other place within the usual range of their flight, to prevent their egress for a time, longer or shorter, according to the season. This has the effect of rendering them circumspect, and makes them look about them prior to their taking flight from their new locality. Acting also on the same opinion, I am in the habit of marking all the entrances to my bee-boxes with different colours, to secure their occupants against committing mistakes, though I have some doubt as to the necessity of this measure."—(Dr. Bevan in lit.)

To these observations I may add some further remarks. It is by the sense of vision that the drone of the hive discovers his royal partner in the air, during his short excursive flights; and celebrates there his connubial duties, as believed by Huber;*

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* I have no doubt that this opinion of Huber's is correct. I once found, about noon, on a very fine calm day, in the beginning of May, a drone hive bee, which I saw fall to the ground enfeebled and mutilated in the particular way described by Huber. This happened at a distance of from two to three hundred yards from some cottages where bees were kept. Every one also must have noticed the pairing of butterflies in the air. This is the constant habit of the diurnal *Lepidoptera*, and I have reason to believe that these species will not pair in confinement. During the past summer I have reared more than one hundred specimens of *Vanessa urticæ*, and also nearly as many of *Vanessa Io*; and although the sexes of each were confined together in the same breeding cage, and the bodies of the females became fully distended by the development of the ova, *not a single act of connubial intercourse took place*, but the whole died, both males and females, at the end of a few weeks, the females without depositing even a single egg.

and, as if watching for her departure, I have repeatedly seen him, at midday, wheeling his heavy oscillatory flight in front of the bee-house, with his head constantly directed towards the entrance of the hive. Every one must have remarked the acuteness of sight in the dragon-fly, and with what instantaneousness it avoids the approach of danger, even at a considerable distance,—darting upwards, sideways, and in every direction, when chased by the swallow on the stream,—and when danger is passed that it constantly returns to the same spot. It captures its prey by sight, with the rapidity of thought, while hovering continually over the same water-plant; and, after an extensive flight around the pool, by the hedge-row, or in the air, hawking in quest of food, it returns again and again with its captures, and alights to devour them on the selfsame leaf.

The whole family of butterflies also are in the habit of returning to the same spot within a very short period. The cabbage butterflies repeatedly visit the same plants. The nettle butterfly usually revisits the same group of nettles after less than an hour's absence; and I have often observed the gay autumnal species, *Vanessa Atalanta*, at the end of September, when but few flowers are in bloom, return frequently to the selfsame group of blossoms of an *Arbutus*, although the shrub was secluded and almost hidden by larger plants. This occurred not merely on the same day, but on the fine mornings of succeeding days.

Who can doubt that these, the gayest of nature's children, are directed in their movements by that sense with which nature has provided them to a greater extent than any other of her magnificent productions? or that to this endowment she has added a recollection of locality and of objects once recognized, observed by means of that perfected sense? This is proved to be the fact by the proceedings of the little solitary bee *Megachile centuncularis*, which I have detailed on a former page of this volume. By the sense of vision this insect was led to select that material, the *carded cotton cloth*, which it was impossible for her to have found in a state of nature in this country, and yet which was the best adapted for her object in departing from her usual habit; while on two succeeding days she remembered the locality in which it was to be obtained, and returned again and again to the same spot to procure that which she regarded as best fitted for her purpose.

X. *Description of a new Genus of* Diptera *allied to* Stratiomys. *By* S. S. SAUNDERS, Esq.

Genus ALLIOCERA (αλλιος, diversus, κερας, cornu).

Corpus latum, depressum, subquadratum. Thorax convexus, in medio latior, lateribus rotundatis. Caput transversum, thorace vix latius. Antennæ triarticulatæ, quarum articulus primus elongatus, secundus brevis, tertius sex sectiones habens, basi productus, apice valdè dilatatus, cui pars intus obliquè conjuncta.

Sp. *A. Græca.* (Pl. IV. fig. 1.)

Niger, flavo-maculatus, antennis nigris, fœminæ vertice nigro punctoque flavo.

Long. corp. lin. 5—6.

Habitat in Epiro.

In Mus. Ent. Soc. Lond. et Dom. Saunders.

Male.—Head black, with a square patch of cinereous hairs below the insertion of the antennæ. Scutellum black, with the points yellow, and sometimes a slight connecting line between them, and two dots of the same colour. Base of femora and apex of tibiæ black.

Female.—Head transverse, with a yellow band behind the eyes, and a broad band of same colour down the front with a black line. Antennæ black. Thorax black, covered with cinereous hairs above and below. Scutellum yellow, armed with two points, and a black marking at the base. Second, third, and fourth segments of abdomen having on each side a somewhat triangular yellow mark, and central one of the same nature at the apex of abdomen. Body beneath yellow, banded with black. Legs yellow. Wings slightly tinged with ochraceous.

Found on umbelliferous plants in April and May on the shores round the Gulf of Ambracia. The antennæ present a very remarkable conformation, the apical portion having somewhat the appearance of a cloven foot; and in some specimens this portion of the antennæ is much more dilated than in others.

DESCRIPTION OF PLATE IV.

Fig. 1, the insect slightly magnified; 1 *a*, the head from above; 1 *b*, the antenna highly magnified; 1 *c*, the wing.

XI. *On the Species of the Genus* Ceria, *Fab.* *By* W. W. Saunders, Esq. F.L.S. &c.

[Read 4 June, 1843.]

The genus *Ceria* was established by Fabricius for the reception of the *Musca conopsoides* of Lin., the specific name of which he changed to *C. clavicornis*. This species then, which has the abdomen cylindrical and slightly subclavate, I take to be the typical form of the genus, while those with the abdomen decidedly clavate, the first joint being slender, I shall treat as subtypical. Of the typical species three are described, all inhabiting Europe:—the *C. conopsoides*, *subsessilis*, and *vespiformis;* to this I propose adding two more species, the *C. intricata*, from the same quarter of the world, and *C. ornata*, from the north coast of New Holland. Of the subtypical species two are described, the *C. Javana*, Wied., from Java, and *C. Eumenioides*, W. W. Saund., from northern India; to which I have to add, as new species, the *C. Gambiana* from Gambia, and *C. breviscapa* from Port Philip, New Holland. A tenth species is described by Wiedemann, in his "Aussereuropaische Zweifleugelige Insecten," under the name of *C. afra*, but no remark being made on the shape of the abdomen I do not know into which division to place it; the absence of any remark, however, leads me to suppose the species to range among the typical ones. The species at present known will therefore stand thus:

1st Division. Abdomen cylindrical subclavate.

Ceria conopsoides, Lin. Europe.
—— *subsessilis*, Illig. Do.
—— *vespiformis*, Lat. Do.
—— *intricata*, W. W. Saund. Southern Europe.
—— *ornata*, W. W. Saund. North Coast of New Holland.
—— *afra*, Wied. Cape of Good Hope.

2nd Division. Abdomen decidedly clavate.

Ceria Javana, Wied. Java.
—— *Eumenioides*, W. W. Saund. N. India.
—— *Gambiana*, W. W. Saund. Gambia.
—— *breviscapa*, W. W. Saund. New Holland.

Thus it appears that the genus *Ceria* is only known at present to inhabit the Old World and New Holland; four species being from Europe, all typical, two Asiatic, two African, and two from New Holland.

Sp. 1. *Ceria intricata*, W. W. Saund.

(Pl. IV. fig. 2; 2 *a*, frontal pedicle and antennæ.)

Head yellow, with the vertex and a line down the face black. Eyes black. Pedicle of the antennæ black, tip, base, and under part rufous. Antennæ black. Thorax black, with a round spot just behind each eye on the anterior margin, and a broadish band extending from the base of the wings downwards yellow. Halteres yellow. Scutellum yellow. Wings somewhat tawny, with a broad dusky band along the anterior margin, and the interno-medial nerve bordered with the same colour. Abdomen black, minutely punctured, the first joint almost as broad as the second and third, with two yellow basal spots and the posterior margin yellow; the remaining joints margined with yellow posteriorly. Legs yellow; the two anterior pairs, with the femora and tibiæ banded with black; the posterior, with the apices of the femora and tibiæ of the same colour. Tarsi yellow, the hinder dark brown above.

Length 4-tenths inch, expansion 7-tenths inch.

Habitat Albania, where it was taken abundantly by Mr. S. S. Saunders.

In my own and other Cabinets.

A variety occurs with the pedicle of the antennæ entirely rufous-brown.

This species is somewhat less than, but very nearly allied to, *Ceria vespiformis*, Lat., from which however the black and yellow legs easily distinguish it. From *C. subsessilis*, Illig., it is distinguished by the length and colour of the pedicle of the antennæ.

Sp. 2. *Ceria ornata*, W. W. Saund.

(Pl. IV. fig. 3; 3 *a*, 3*b*, the head in different positions.)

Head yellow, with a longitudinal line down the face, and parts of the mouth dusky brown. Eyes black. Pedicle of antennæ rufous brown. Antennæ rufous, with the first joint black brown. Thorax black, with four yellow spots on the anterior margin above, and four others in a transverse line joining the bases of the wings, also a yellow band extending downwards from the bases of the wings. Scutellum yellow. Abdomen with the first joint almost as broad as the second and third, rufous, margined with yellow posteriorly, and stained with dusky on the upper basal side; second joint black, margined with yellow posteriorly; third and fourth rufous, the former with a yellow posterior margin.

Legs rufous, with the bases of the femora pale corneous. Wings with a rufous tinge, and with a broad rufous brown streak along the anterior margin.

Length 5-tenths inch, expansion 1 inch and 1-tenth.

From the north-west coast of New Holland.

In the Cabinets of the British Museum and the Rev. F. W. Hope.

This very beautiful species is of the typical form of *Ceria*, and differs widely in colour from any species yet described.

Sp. 3. *Ceria Gambiana*, W. W. Saund.

(Pl. IV. fig. 4; 4*a*, the head.)

Head yellow, with the vertex, and two lines down the face, meeting above and below, dusky brown. Eyes black. Pedicle of antennæ and antennæ rufous brown. Thorax chesnut brown, with two streaks on the upper part extending from the bases of the wings to the anterior margin, and two broad streaks extending downwards from the same points, yellow. Scutellum yellow. Wings tinged with rufous brown, and with a broad band along the anterior margin growing darker towards the tip, and the externo-medial nerve bordered with dark brown. Abdomen with the first joint lengthened and attenuated, chesnut brown, margined posteriorly with yellow, and two yellow spots, one on each side of the base; second and third joints black brown, the hinder margins yellow; apical joint pitchy brown, with a black line down the centre above. Legs rufous brown, with the hinder femora banded with yellow. Tarsi rufous brown.

Length 7-tenths inch, expansion 1 inch and 3-tenths.

From the river Gambia.

In my own Cabinet.

This fine species very much approaches in form the *Ceria Eumenioides*, which I have described in a previous paper read before this Society, (vol. iii. Pl. V. fig. 6.)

Sp. 4. *Ceria breviscapa*, W. W. Saund.

(Pl. IV. fig. 5; 5*a*, the head.)

Head black; the face yellow, with a black cross, the transverse band of the cross near to the pedicle of the antennæ. Pedicle of antennæ very short, rufous brown. Antennæ pitchy brown. Thorax black, with three yellow round spots above on the anterior margin, and two narrow transverse just before and in a line with the bases of the wings. Scutellum dark brown. Wings dusky, with a broad blackish band along the anterior margin, and the externo-medial nerve bordered with dusky brown. Abdomen black, the first joint short, attenuated, the remaining joints forming a club as broad as the head; the first, second and third margined with yellow posteriorly. Legs dark rufous brown, with the bases of the femora and apices of the tibiæ black. Tarsi dusky.

Length 7-twentieths inch, expansion 15-twentieths inch.

From Port Philip, South Australia.

In my own Cabinet.

For this interesting species, very remarkable for the shortness of the scape of the antennæ, I am indebted to Mr. Thwaites of Bristol. The specimen had been preserved in spirit, the colours are therefore probably somewhat faded, or perhaps altered from their original hue.

P. S.—M. Macquart has also published the following description of a new species of this genus, nearly allied to *C. conopsoides*, from Algeria.

Ceria scutellata, Macq. Dipt. Exot. Nouv. tom. ii. part 2, p. 10, pl. 1, fig. 1.

Petiolo antennarum elongato, pedibus rufis, femoribus annulo fusco, scutello flavo.

Long 3½ lin. ♂.

"Semblable à la *C. conopsoides*, excepté une petite bande transversale noire à la base des antennes au lieu des deux petites bandes obliques qui descendent de cette base vers les côtés. Front; point de ligne noire qui de la base des antennes s'étend jusqu'à la partie linéaire du front. Pêtiole des antennes brunâtre en dessus, fauve en dessous. Thorax; point de petite tache jaune en avant de la base des ailes au-dessus de la bande jaune des flancs, écusson entièrement jaune."—D'Alger, Museum du Jardin des Plantes, Paris.

Note.—This is the only exotic species known to M. Macquart, except Wiedemann's two species, which he does not appear to have ever seen in nature.

XII. *Description of an additional Species of* Ceria.
By W. W. Saunders, Esq., F.L.S., &c.

[Read 7th August, 1843.]

At a recent meeting I laid before this Society descriptions of several new species of the interesting Dipterous genus *Ceria*. To the paper which was then read I beg now to add another fine species which I have detected in the rich entomological collection of the Rev. F. W. Hope, after whom I take the liberty of naming it. This species will range in the division with the first joint of the abdomen much attenuated, and next to *Ceria Gambiana*, W. W. S., adding one more species to the African group of this genus.

Ceria Hopei, W. W. Saund. (Plate IV. fig. 6.)

Head yellow with the vertex, a broad line down the centre of the face, and two lateral patches just beneath the eyes, dark chesnut. Antennæ and pedicle of the same colour. Eyes black-brown. Thorax dark chesnut, with a broad longitudinal yellow band on each side, extending from the base of each wing to the anterior margin, and another broad band of the same colour reaching downwards from a little before the base of each wing. Scutellum yellow. Abdomen with the first joint much attenuated, long, of a dark chesnut, becoming nearly black towards the base, on each side of which there are two yellow lobes; second, third and fourth joints black-brown, with an ashy tint. Wings sandy, with a broad rufous brown band along the anterior margin, growing blackish towards the apex. Legs dark chesnut, with the tarsi somewhat darker.

Length seven-tenths inch, expan. 1 inch and 3-tenths.

Inhabits Sierra Leone.

In the Cabinet of the Rev. F. W. Hope.

This species is nearly allied to *C. Gambiana*, but a marked difference exists in the three terminal joints of the abdomen being concolorous.

XIII. *Notice of a Gynandromorphous Specimen of* Smerinthus Populi. *By* G. A. Thrupp, Esq.

[Read 4 September, 1843.]

I have great pleasure in submiting to the notice of the Society an interesting specimen of gynandromorphism in *Smerinthus Populi,* captured in July this year (1843). In the size of the thorax and abdomen, the characters of this specimen are decidedly *female.* The right antenna and the right wings, both in shape and in the colour of their upper surface, represent those of the *male*—the left antenna that of the female. The left anterior wing is very singularly modified. The anterior third of its upper surface is pale in colour, and the markings are similar to those of the *female,* with the contour towards the apex more angular than that of the corresponding wing on the opposite side; yet the remaining two-thirds of the wing are *male* in the markings and characters, as are also those on the left posterior wing. The right tibia of the first pair of legs is densely clothed with long hairs, as is usual in the *male,* whilst the left is scantily furnished, as in the *female.* The under surface of both pairs of wings is characteristic of the male, with the exception of a small portion of the left anterior wing, which is nearly destitute of the dingy white apical spot observable in the male sex, while the colours of the right wings are paler than those of the left. The costal half of the left-hand wing, the side on which the antenna is female, is however darker coloured than the inner half. I may remark, as regards the internal parts of the body, that in the males of *S. populi* I have found two small white bladders close to the apex, both of which structures were apparent also in this instance; added to which the abdomen was full and even distended with eggs. I would further direct attention to the absence in this specimen of bilateral symmetry in the distribution of the sexual characters, so strongly marked in other specimens of this singular kind of gynandromorphism which have been described.

XIV. *Descriptions of two new Genera of Curculionidæ.*
By G. R. WATERHOUSE, Esq.

[Read 6 December, 1841.]

METOPON.[*] Nov. Gen.

Rostrum elongatum, ad apicem sub-dilatatum.

Antennæ tenues, ad basin rostri insertæ, 11-articulatæ, articulis 3us basalibus subæqualibus, tribus ultimis clavam subsolidam formantibus.

Caput latum, pone oculos paulò elongatum ; oculi laterales, rotundati, prominuli.

Thorax transversus, basi apiceque truncatus.

Elytra oblongo-ovata ; humeris subrectangulatis.

Metopon suturalis, Waterh. (Pl. V. fig. 1 and 1 *a*, antenna.)

Met. testaceus; capite, thorace, elytrisque punctatis; scutello nigro; elytris ad suturam nigrescentibus.

Long. corp. (rostr. inclu.) lin. 1⅓.

Hab. Van Diemen's Land.

This insect, I think, should be placed near the following (*Minurus*), and the two, it appears to me, might most conveniently be arranged between *Rhinomacer* and *Rhynchites*. In having the abdomen entirely hidden by the elytra, they agree with the former of these two genera, whilst in general form they are intermediate.

The genus *Metopon* may be distinguished by the antennæ being placed at the base of the rostrum. They are more slender than in *Rhynchites*, and in this respect resemble the same organs in *Minurus*, but they are shorter than in that genus, and the joints of the club are much less distinctly separated.

MINURUS.[†] Nov. Gen.

Rostrum elongatum, ad apicem dilatatum.

Antennæ elongatæ, tenues, versus medium rostri insertæ, 11-articulatæ, articulis basalibus subæqualibus, tribus ultimis remotis, clavam formantibus.

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[*] Μετοπον, the forehead, the front, the face, in allusion to the great comparative breadth of the head between the eyes.

[†] Μινυϱος, little, slender, tiny, &c., in allusion to its small size and more slender form, as compared with the allied genus *Rhynchites*.

Caput elongatum; collo crasso.

Thorax subcylindricus, basi apiceque truncatus. Elytra oblonga, abdomen tegentia.

Minurus testaceus, Waterh. (Pl. V. fig. 2 and 2 *a*, antenna.)

Min. testaceus, oculis nigris; capite thoraceque punctatis; elytris profundè punctato-striatis.

Long. corp. (rostr. incl.) lin. 1⅙.

Hab. Chiloe.

The above are the principal characters of a minute Coleopterous insect belonging to the *Curculionidæ*, and closely allied to the genus *Rhynchites*, but differing from that genus in being of a more elongate form, in having the elytra extended beyond the abdomen, and the antennæ proportionately much longer and more slender than in the species of that genus. The three joints forming the club are less dilated and longer.

XV. *Observations upon the structural Character of the Death Watch* (Atropos pulsatoria), *with Description of a new British Genus in the Family to which it belongs.*

By J. O. Westwood, Esq., F.L.S., &c.

[Read February, 1840.]

Having had occasion to remark in my Introduction to the Modern Classification of Insects, that the species of the family *Psocidæ* require a more minute investigation than had previously been given to them, and having been compelled, from an examination of my own collection, to establish a new genus, and at the same time to remark that the genus *Cæcilius* of Curtis appeared to be founded upon a sexual character, I consider myself fortunate in being able to lay before the Society a notice of some other interesting modifications of structure occurring in the family. Mr. Curtis and myself have observed that the antennæ in this family consist of about thirteen joints. Dr. Burmeister, in the new part of his Handbuch, however, describes the antennæ of *Atropos* (which name he changes to *Troctes*) as having only ten joints, and that of *Psocus* and his new genus *Thyrsophorus*, as possessing only eight joints, observing of the former of these genera, "J. Curtis giebt 13 gleider an, ich sah nie mehr als 8," (p. 775, note). The careful examination which I made of numerous individuals of the genus *Psocus* convinces me that there are thirteen joints in the antennæ, whilst the antennæ of the *Atropos pulsatoria* are 15-jointed, as I have ascertained by a careful examination of many living specimens of various sizes, in which also the labial as well as the maxillary palpi are exserted, although Burmeister says "die Lippentaster fehlen." It is therefore important to ascertain with precision the *Atropos pulsatoria*, and its very common occurrence in neglected boxes of insects enables us at any time to examine it in a living state. Its principal characteristics consist in having the prothorax very short, the meso- and meta-thorax united into a square plate, the hind femora greatly incrassated, the tarsi 3-jointed, and the antennæ 15-jointed. I have represented it in my vol. 2, p. 18, fig. 59, 19. Now Burmeister's generic description agrees herewith, except in the number of joints of the antennæ. De Geer has also given a figure of this species, vol. 7, t. 4, f. 2, representing the quadrate meso- and meta-thorax and the thickened femora of the hind legs. Burmeister, however, does not quote these figures, but refers *A. pulsatoria* to De Geer's third figure of this plate, which represents a totally different insect, belonging to a different genus, having four rudimental wings, slender legs, and uniform segments of the thorax, and which is, I apprehend, the pupa of a male *Psocus*, such as I have figured in my Introduction, fig. 59, 10. Burmeister in his generic character of *Troctes* (or *Atropos*) refers however to another figure of De Geer, (namely, tab. 4, fig. 1,) which represents an apterous specimen with uniform segments, with simple hind legs, and with long antennæ, which he describes as 18-jointed. This, however, is clearly distinct, both specifically and generically, from *Atropos*. Again, Burmeister refers to Latreille's figure of *Psocus pulsatorius*, given in Coquebert's Illustratio Iconographica, tab. 2, f. 14, but that figure is either inaccurate (representing the thoracic segments as very short and equal, and the hind legs simple) or the reference to it by Burmeister is incorrect.

But the more immediate object of this communication is to mention the discovery of a species possessing as many as twenty-seven joints in the antennæ, and as this species is a domestic one, I trust that the discovery will be deemed to possess an additional interest on that account. I have found it amongst books, crawling in fact over the pages of one of the volumes of Mr. Stephens's Illustrations, a circumstance I mention as in some degree showing it to be a native species, for had I found it on a newly received foreign work I might have doubted this. It is three times the size of *Atropos pulsatoria*. I have named it, after one of the Fates, *Clotho*, having used the name of *Lachesis*, or rather a diminutive thereof, for *Psocus fatidicus*, and the name of the third Fate, *Atropos*, having been given to *Psocus pulsatorius*.

CLOTHILLA.

Corpus parvum, apterum; capite subtriangulare (haud oblongo-quadrato); thorace capite vix latiori, abdomine ovato, subconvexo.

Antennæ longæ, gracillimæ, articulis circiter 27, duobus basalibus crassis. *Prothorax* segmentis aliis thoracicis brevior. *Pedes* simplices, tarsis 3-articulatis.

Clothilla studiosa, Westw.

Luteo-albida, oculis brunneis, antennis fuscis, labro albido, incisuris abdominis brunneis; pedibusque albidis.

Long. corp. lin. 1.

Habitat in domu meâ, super libros cursitans.

XVI. *Descriptions of new Species of* Coleoptera, *from the Kasyah Hills, near the boundary of Assam, in the East Indies, lately received from Dr. Cantor.* By the Rev. F. W. Hope, F.R.S., &c.

[Read 7th November, 1842.]

Family LUCANIDÆ.

Sp. 1. *Lucanus Cantori*, Hope ♂.

Affinis *Luc. villoso*, Hope, at major. Piceo-brunneus aurataque pubescentia tectus; mandibulis exsertis, in medio dente majori armatis, apicibus subfurcatis; clypeo deflexo trigono, aurantiis capillis obsito. Thorax fere ut in *Lucan. lunifero*, Hope. Corpus subtus flavo-pubescens, femoribus rubro-corallinis tibiisque tarsisque nigris. Fœmina differt capite thorace multo minori, mandibulis autem longitudine fere æquali.

Long. lin. 31, lat. lin. 9; ♀ long. lin. 18, lat. lin. 9.

In Mus. Dom. Hope.

Sp. 2. *Lucanus Mearsii*, Parry.

Affinis præcedenti. Niger, mandibulis exsertis in medio unidentatis, apicibus late furcatis, dente parvo fere ad basin posito; elytris nigro-æneis, nitidis, et sub lente subtilissime punctulatis, capillisque flavis aspersis. Corpus infra nigro-æneum, capillisque luteis ornatum; femoribus tarsisque nigris, tibiisque rubro-piceis. (Mas.)

Long. corp. mandibulis inclusis, lin. 28, lat. lin. 8.

Habitat circa Silhet.

This beautiful species has been sent to me by Captain Parry for description; it is closely allied to the *Lucanus lunifer* of Hope, and is remarkable for having metallic elytra. Between the middle of its mandibles and the forked apex another denticle will be found in different specimens. I find that there are others which vary in size. It is named in honour of Captain Mears; the other sex is unknown to me.

Sp. 3. *Lucanus Platycephalus*, Hope.

Niger, mandibulis thorace parum longioribus, apicibus furcato-dentatis. Corpus antice latum, ultra oculos porrectum, depressum. Thorax transverso-quadratus, angulis posticis sub-obliquis, fossulâ impressâ utrinque, ad posteriorem partem disci posita. Elytra nigra nitida, fere glabra, sub lente subtilissime punctulata. Corpus infra concolor, tarsis infra auricomatis. Fœmina adhuc latet.

Long. lin. 10, lat. lin. 5.

The above insect I received lately from the Kasyah Hills; the female, if I am not mistaken, is in the cabinet of Captain Parry.

Sp. 4. *Lucanus Maclellandi*, Hope.

Rubro-piceus, mandibulis capite thoraceque minoribus, interne multidentatis, apicibus acutis. Caput antice fossulâ supra oculos impressa, sparsimque subvariolosum. Thorax angulis anticis acutis, posticis obliquis. Elytra subtilissime punctulata, rubro-picea. Corpus infra concolor, tibiis anticis externe subdenticulatis, quatuor reliquis inermibus, tarsis supra nigro-piceis infraque auricomatis.

Long. lin. 8, lat. lin. 2½.

This elegantly-formed species is named after the celebrated editor of the Calcutta Journal, to whom the naturalists of the East are much indebted for his zeal in promoting science.

DORCUS, Mac Leay.

Sp. 5. *Dorcus Antæus*, Hope.

Niger, nitidus et glabratus, sub lente tenuissime granulatus; latissimus, valde depressus; elytris lævibus, clypeo lato, mandibulis deplanatis, intus dente forti armatis, apicibus acutis. Corpus infra concolor, tibiis anticis externe denticulatis, quatuor posticis unidentatis.

Long. lin. 31, lat. lin. 11.

This gigantic insect I lately received from the indefatigable Dr. Cantor; it is allied to *Titan* of Boisduval, to *Bilunatus* of De Haan, and *Bucephalus* of Westwood.

Sp. 6. *Dorcus Tityus*, Hope.

Niger, mandibulis capite thoraceque æqualibus, interne denticulatis, dente forti fere ad basin posito, reliquis minutis, apicibus subfurcatis. Caput clypeo subbifido, transverse quadratum depressum, thorace latius. Thorax semilunaris, lateribus in medio dilatatis, angulis anticis subacutis, posticisque obliquis. Elytra thorace minora, ad apicem gradatim attenuata. Pedes tibiis anticis multidentatis, quatuor posticis unidentatis.

Long. lin. 29½, lat. lin. 9½.

Habitat circa Silhet.

The above fine insect is described from the cabinet of Captain Parry: it appears to be unique.

Sp. 7. *Dorcus Reichei*, Hope.

Niger, mandibulis capite thoraceque æqualibus, ad basin inermibus, ante apicem dente forti subbifido armato, apicibusque subfurcatis. Elytra thorace parum minora atroque castanea. Corpus infra nigrum nitidum. Pedes sicut in *D. Tityo.*

Long. lin. 24, lat. lin. 7.

I have received this insect from the Kasyah Hills, and find that Captain Parry has one from Silhet, which differs slightly in the sculpture; it is named in honour of Monsieur Reich, a Parisian Entomologist.

Sp. 8. *Dorcus punctilabris*, Hope.

Niger, mandibulis exsertis, capite thoraceque minoribus, interne bidentatis, dentibus minutis apicibusque acutis. Thorax subtilissime punctatus. Elytra lineato-punctata, punctis per totum discum aspersis. Corpus infra nigrum, pectore capillis flavis obsito. Pedes antici tibiis multidentatis, quatuor posticis unidentatis tarsisque infra auricomatis.

Long. lin. 17½, lat. lin. 6.

Sp. 9. *Dorcus Blanchardi*, Hope.

Affinis præcedenti. Niger, mandibulis exsertis, capite thoraceque minoribus, subvarioloso-punctatis, dente robusto ad medium posito, secundo minuto, apicibusque acutis. Elytra crebrissime punctulata, sub lente quasi cinerea. Corpus infra nigrum, mandibulis infraque subvariolo-punctatis. Pedes sicut in specie præcedente.

Long. lin. 16, lat. lin. 5½.

The above insect was received from the Kasyah Hills, and is named after Monsieur Blanchard, a Parisian Entomologist.

Sp. 10. *Dorcus cognatus*, Hope ♂.

Affinis præcedenti. Niger, mandibulis impunctatis, dente forti fere in medio posito, secundo valde minuto, vix distincto.

Elytra glabra nitida, sub lente punctulata, lateribus extrorsum lineato-punctatis. Pedes sicut in *Dorco Blanchardi.*

Long. lin. 17, lat. lin. 5.

Habitat in agris Himalayanis, e Museo Dom. Parry descriptus.

Sp. 11. *Dorcus Chevrolatii*, Hope.

Affinis *L. Saigæ*, Fab. Niger, mandibulis exsertis arcuatis, capiteque longioribus, in medio intus lato dente armatus, apicibus subfurcatis. Caput thoraxque elytris latiora depressiuscula. Elytra piceo-castanea, fere glabra, ad apicem gradatim decrescentia. Corpus infra nigro-piceum, pedibus concoloribus, femoribus tibiisque aurantiis capillis obsitis.

Long. lin. 26, lat. lin. 8½.

The above insect was received from Dr. Cantor from the Kasyah Hills; it is named in honour of Monsieur Chevrolat, the author of a work on the Mexican *Coleoptera.* There are several species confounded with *L. Saiga* of Fabricius.

Family DYNASTIDÆ, Mac Leay.

DYNASTES, Mac Leay.

Sp. 12. *Dynastes Cantori* ♂.

Atro-piceus, cornu capitis recurvo robusto, thorace antice bicorne; elytris obscure piceis, marginibus externe pallide castaneis. Corpus infra rubro-piceum, femoribus concoloribus, tibiis tarsisque nigricantibus. Fœmina differt capite inermi thorace angulis anticis utrinque parum productis.

♂ Long. lin. 26, lat. lin. 12. ♀ Long. lin. 24, lat. lin. 12.

The above magnificent species I have much pleasure in dedicating to Dr. Cantor, who, amidst the laborious services of the medical profession, still encourages others to collect for the benefit of English Entomologists, although unable individually to undertake such matters. There is little doubt that the insects allied to *Dynastes Hardwickii* form a peculiar subgenus, differing from *Chalcosoma.*

Family LAMIADÆ.

Sp. 13. *Lamia Downesii*, Hope.

Affinis *Lamiæ Roylii*, Hope, at minor. Nigra, antennis corpore longioribus, elytris apicibus interne et externe mucronatis, ad basin scabris, maculis decem flavis notatis, maculis octo majoribus, duabus aliis minutis. Corpus infra fusco-nigrum, lateribus utrinque flavo-vittatis.

Long. lin. 27, lat. lin. 9.

The present insect is closely allied to *Lamia Roylii*, described by me in the Zoological Transactions, &c. vol. i. p. 103. It differs in having its antennæ less scabrous. It is scarcely so long as *L. Roylii*, but is broader and more robust. In the former insect the spines at the apex are merely sutural, whilst in the present species they are more strongly marked internally, as well as laterally. In some specimens the two smaller yellow spots are wanting. The above insect is dedicated in honour of Ezra Downes, Esq., one of the most zealous collectors of Oriental Entomology. Some valuable communications may shortly be expected from him, particularly in relation to the East Indian *Chalcididæ*.

Sp. 14. *Lamia Parryi*, Hope.

Griseo-nigra, antennis corpore longioribus, articulis scabris; elytris ad basin mamillato-scabris, maculis albis octo notatis. Corpus infra fusco-griseum, lateribus utrinque albo-vittatis.

Long. lin. 17½, lat. lin. 6.

Habitat circa Silhet.

This insect I received from Silhet from Captain Parry's collection, and I have also received it from the Kasyah Hills by means of Dr. Cantor.

XVII. *On the Genus* Mæchidius *of Mac Leay.* *By* J. O. WESTWOOD, F.L.S., &c.

[Read September, 1841.]

MÆCHIDIUS is one of those singular forms which disturb the preconceived arrangements of professed systematists, and of which New Holland affords such numberless examples. Mr. Kirby, who first described the insect, which served as the type of the genus, observed respecting it, that he could not clearly ascertain whether it belonged to *Trox* or *Melolontha*. He accordingly described it under the name of *Trox spurius* (Linn. Trans. xii. p. 462). Mr. W. S. Mac Leay subsequently proposed for it the generic name of *Mæchidius*, considering it rather as nearer to *Trox*, and giving a detailed description of its oral structure, accompanied by outline figures of the essential parts from the pencil of Mr. Curtis (Horæ Ent. i. p. 140, tab. 2, fig. 15). Since the publication of that work no addition has been made to our knowledge of the genus, and from the rarity of the insect, which does not appear to exist in any of the continental collections, but few Entomologists are acquainted with it, no figure of the entire insect having yet been published.

Two species of this genus, recently added by the Rev. F. W. Hope to his collection, and a fourth in my own collection, have rendered necessary a more precise specific description of the typical species, whilst at the same time the opportunity of figuring so interesting a genus will, I am sure, be appreciated by the student.

The parts of the mouth present several peculiarities of structure, which require a more detailed description than has been given of them. The clypeus has the lateral and anterior margins reflexed, the front being emarginate; beneath we perceive the part which Mr. Mac Leay terms the labrum, but which is certainly not articulated to the clypeus, although there is transverse impression, which seems to indicate that the clypeus and labrum are confluent. This supposed labrum is emarginate at its extremity, and meets the anterior margin of the mentum in order to close the mouth. The mandibles are horny, short, trigonate, the outer margin rounded, and the apex entire. On the side next the labrum the mandibles are smooth and highly polished, but beneath they are furnished with two strong elevated ridges, forming an oblique canal, which causes them to appear furnished with two short teeth at the inner margin, when seen obliquely; beneath the middle of the mandible arises an elongated slender membrane, and the internal basal angles are much produced, but there is no transversely striated molary plate. The mentum and maxillæ closely unite to form the underside of the mouth, the lobes of the latter and the labrum not being produced more forward than the front margin of the mentum. The outer lobe of the maxillæ is horny and 5-toothed; the inner division of the maxillæ is distinct, although small and horny; the inner lobe, arising from its extremity, small, membranous and ciliated. The mentum has the sides straight, but not parallel, the front margin being wider than the base, and almost straight; the labial palpi arise within, close to the anterior angles of the mentum, the tip of the second joint, and the short third joint, being only visible. Within the mouth, between the mandibles and the supposed labrum, I observed, in two specimens I dissected, a membranous piece which appears to me to be analogous to the membranous labrum of the *Scarabæidæ*. The two spurs of the middle tibiæ are acute, but the two at the extremity of the hind tibiæ are obtuse and flat; the fore tibiæ are obtusely tridentate on the outer margin, and the outer extremity of the two posterior tibiæ is produced into a thick diverging spur; all the ungues are simple and entire.

On reviewing these characters with reference to the group to which the genus naturally belongs, I see no grounds for regarding it as Trogideous, whilst its relation to the *Melolonthidæ* appears far stronger. This is more especially the case if Mr. Mac Leay be correct in the nomenclature of the part he terms labrum. It may appear strange that any doubt can exist as to whether a Lamellicorn beetle is Thalerophagous or Saprophagous;* but the fact is,

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* By comparing the characters of *Mæchidius* with those of these two groups, as given by Mac Leay (Horæ Ent. i. pp. 68, 69) we shall perceive that the genus accords even better with the *Thalerophaga* than with the *Saprophaga*.

SAPROPHAGA.	MÆCHIDIUS.	THALEROPHAGA.
Antennæ 8- to 11-jointed,	Antennæ 9-jointed.	Antennæ 9- to 10-jointed.
Clava short, thick, 3-jointed.	Clava rather elongate, 3-jointed.	Clava rather elongate, often more than 3-jointed.
Feet always robust.	Feet rather slender	Feet less robust.
Tibiæ broad.	Tibiæ narrow.	Tibiæ rather narrow.
Ungues undivided.	Ungues undivided.	Ungues often divided.
Colour lurid or black.	Colour lurid.	Colour gay metallic.
Elytra generally extending to the anus.	Elytra not covering the anus.	Elytra rarely covering the anus.

I omit the nature of the food, because we are ignorant of that of *Mæchidius*.

that in these osculant genera, of whose habits nothing is known, we meet with a combination of characters which set all *our* divisions at nought. Looking at the structure of the maxillæ, we should expect the same habits as we find in *Melolontha*, but there is no molary plate for masticating leaves in the mandibles.

The following opposed characters of the *Trogidæ*, *Melolonthidæ*, and *Mæchidius*, will, I think, clearly prove that the genus in question belongs to the *Melolonthidæ*, and not to the *Trogidæ*.

TROGIDÆ.	MÆCHIDIUS.	MELOLONTHIDÆ.
Labrum distinct, transverse ovate.	*Supposed labrum bilobed.*	*Labrum distinct, bilobed.*
Mandibles without a molary plate, or strong oblique ridges beneath.	*Mandibles without a molary plate*, but with a few strong oblique ridges beneath.	Mandibles with a molary plate, but without strong oblique ridges beneath.
Maxillæ with the outer lobe membranous, ciliated; inner lobe toothed and horny.	Maxillæ with outer lobe horny, toothed; inner lobe small, membranous.	Maxillæ with outer lobe horny, toothed.
Anterior tibiæ not notched.	Anterior tibiæ notched.	Anterior tibiæ notched.
Podex covered.	Podex uncovered.	Podex uncovered.
Longitudinal veins of wings at unequal distances apart.	Longitudinal veins of wings at nearly equal distances apart.	Longitudinal veins of wings at nearly equal distances apart.

It further appears to me that the nearest approach to this genus is made by some of the numerous small *Aphodius*-like *Melolonthidæ* of New Holland.

(Since the above was written, I have found that Latreille states, "Je soupçonne que les *Mæchidies*, à raison de la forme et de l'échancrure du labre et de quelques autres caractères, avoisinent les *Mélolonthes*.")

Sp. 1. *Mæchidius Kirbianus*, W.

M. oblongus, obscurus, scaber, subcinereus; elytris punctis papillatis seriatim ordinatis seriebus plurimis; thoracis angulis posticis vix obtusangulis, lateribus rotundatis, dorso utrinque tri-impresso.

Long. corp. lin. ?

Habitat in Nova Hollandia.

In Mus. Britann.

Syn. *Trox spurius*, Kirby, loc. cit. Mac L. &c. (Mæch. spur.)

In size this species is nearly similar to *M. Macleayanus*, but the head and thorax are considerably broader, as are also the legs. The upper surface of the body is opaque.

The sides of the thorax are regularly rounded, and slightly serrulate; the posterior angles are not emarginate, but are very obsoletely obtusangular; they are marked on each side with several transverse impressions; the anterior tibiæ have three obtuse teeth on the outside, the first of which is near the middle of the tibiæ; the lobe of the hind tibiæ is very prominent, and truncate at the tip; the antennæ are castaneous brown.

Mr. Kirby's description of the impressions on the body is as follows: "Corpus punctis pupillatis et centro oblongo eminentibus pallidis, subcinereum et scabrum."

These punctures on the elytra (of which there are about eighteen striæ in each) are nearly round and cinereous, each with a raised oblong centre, the space between each puncture being also elevated.

The specific name of *spurius* being applicable to the insect so long only as it remained in the genus *Trox*, to which it does not belong, I have ventured, in its stead, to designate it with the name of the venerable author by whom it was first made known.

Sp. 2. *Mæchidius Hopianus*, W. (Pl. V. fig. 3.)

M. oblongus, scaber, nigricans, opacus, setulis luteis (præsertim thorace) subcinereus; thoracis angulis posticis valde emarginatis.

Long. corp. lin. 5½.

Habitat in Nova Hollandia? In Mus. D. Hope.

Oblongus, depressus, opacus; elytris vix thorace latioribus, lateribus fere parallelis. Caput transversum, punctatum, setosum, margine reflexo, antico parum emarginato, laterali vix bisinuato. Antennæ castaneæ. Thorax margine antico valde emarginato, lateribus rotundatis, angulis posticis valde emarginato-excisis, dorsi medio parum impresso, lateribus haud transverse impressis; tuberculis minutis, transverso-curvatis, elevatis, nitidis, scaber. Elytra oblonga; thorace parum latiora, lateribus fere parallelis, opaca, fusca; singulo striis 18 e punctis (circiter 40) ovatis parum impressis formatis, spatiis inter puncta elevatis nitidis; setulaque brevi crassa, lutea, decumbenti, in singulo puncto posita. Pedes nigricantes.

[Fig. 3 *a*, underside of head; 3 *b*, labrum; 3 *c* and 3 *d*, mandible in different positions.]

Sp. 3. *Mæchidius Mellianus*, W.

M. angustior, nigricans, capite anticè vix emarginato; thoracis lateribus rotundatis, angulis posticis extus prominentibus; tibiis anticis obtusè 3-dentatis.

Long. corp. lin. 4½.

Habitat in Nova Hollandia. In Mus. D. Melly.

Præcedentibus minor, angustior et magis nigricans, valde punctatus, punctis rotundatis et setigeris. Caput margine antico fere recto, lateribus supra basin antennarum paullo dilatatis. Prothorax lateribus rotundatis, crenulatis; angulis posticis extus in spinam brevem crassam obtusam productis. Elytra oblonga, postice parum latiora, singulo seriebus 18 e punctis ovalibus setigeris longitudinaliter positis; setis brevibus. Tibiæ anticæ angustiores, obtuse 3-dentatæ, dente intermedio reliquis haud majori. Tibiæ posticæ apice haud dilatatæ, angulo externo longitudinaliter producto, trunctato.

Sp. 4. *Mæchidius Macleayanus*, W.

Piceus, nitidus, punctatus, longius setosus; elytris oblongo-ovatis, depressis; thorace lateribus rotundatis, angulis posticis acutis.

Long. corp. lin. 5.

Habitat in Nova Hollandia. In Mus. nostr.

Præcedenti brevior et magis convexus. Caput angustius, rufo-piceum, punctatum, setosum, margine reflexo, antico acute emarginato, lateralibus magis sinuatis. Thorax subconvexus, nitidus, elytris evidenter angustior, lateribus rotundatis, angulis posticis acutis, punctis magnis numerosis impressis, singulo setam gracilem longiorem emittenti. Elytra oblongo-ovata, subdepressa, nitida, striato-punctata (singulo striis circiter 20 e punctis ovatis impressis setigeris formatis). Pedes picei, nitidi, longius setosi; tibiis anticis 3-dentatis, dentibus acutis, intermedio majori; tibiis posticis ad apicem extus longitudinaliter productis truncatis.

Sp. 5. *Mæchidius Raddonanus*, Westw.

Piceus, opacus, punctatus, brevissime setosus, capitis margine antico profunde et acute emarginato, thoracis lateribus rotundatis, angulis posticis acutis.

Long. corp. lin. 4½.

Habitat Port Philip, Australasia. (In Mus. D. Raddon.)

Præcedenti minor et pro magnitudine latior, opacus, breviter setosus, valde punctatus, punctis rotundatis. Caput marginibus elevatis, margine antico acute et profunde emarginato, ante oculos parum dilatato. Prothorax lateribus rotundatis (postice magis rectis quam in præcedente), angulis posticis acutis. Elytra rufo-picea, opaca, singulo striis 18 e punctis minutis subovalibus ornatis, puncto singulo in medio elevato et seta brevi (puncto haud longiori) decumbenti instructo. Pedes ut in præcedente.

Sp. 6. *Mæchidius rufus*, Hope, MSS.

Rufo-castaneus, nitidus, punctatus, tenue setosus, capite lato, marginibus elevatis, tibiis anticis obtuse 2-dentatis, femoribus posticis in medio dilatatis, tarsorum articuloque basali posticorum longe penicillato.

Long. corp. lin. $2\frac{1}{2}$.

Habitat Port Essington, Australasia Septentrionali. In Mus. Hope.

Totus rufo-castaneus (oculis nigris exceptis), nitidus, punctatus. Caput latum, margine antico elevato, in medio parum emarginato. Palpi maxillares quam in præcedentibus longiores articulo ultimo curvato ; mentum oblongum, utrinque versus basin setam longissimam emittens. Prothorax lateribus rotundatis, angulis posticis vix acutis nec prominulis Elytra prothorace vix latiora, singulo (circiter 18) punctato-striato, striis lateralibus confusis ; discoidalibus per paria currentibus, spatiis inter paria parum elevatis vel costatis, punctis elytrorum minoribus quam capitis et prothoracis ; ovalibus singulo setam minutam emittente. Apex elytrorum et podex setis latis pallidis vel squamis obsiti. Tibiæ anticæ ad apicem obtuse bidentatæ ; posticæ in medio marginis interni angulariter dilatatæ, apice bicalcaratæ. Tarsi postici articulo basali longo, extus penicillo longo setarum divergentium instructo et subtus setoso.

Obs. This species differs from all the preceding in the small size, red colour and curious structure of the hind feet.

[Fig. 4 *a*, mandible ; 4 *b*, maxilla ; 4 *c*, mentum and labial palpi ; 4 *d*, antenna ; 4 *e*, fore tibia ; 4 *f*, hind tibia and tarsus.]

[P. S. I find this genus in the French Cabinets, under the name of *Geobatus*, placed amongst the *Melolonthidæ*.]

XVIII. *A Decade, or Description of ten new Species of* Coleoptera, *from the Kasya Hills, near the boundary of the Assam District. By* F. Parry, Esq. F.L.S., &c.

[Read 6 February, 1843.]

Sp. 1. *Cicindela Assamensis*, Parry.

Atro-picea, elytris 4 flavo-maculatis, binis maculis humeralibus minoribus, duabus aliis infra medium disci positis, rotundatis, et majoribus. Corpus infra nitidum, viride, trochanteribus rubris.

Long. lin. 9½, lat. lin. 3.

Habitat in agro Assamensi.

This insect, (hitherto I believe undescribed,) although somewhat rare in our collections, appears to be widely spread, the three specimens with which I am acquainted coming from Assam, the Himalayas and the Kasya Hills. It verges considerably from the true typical form of *Cicindela*, and will probably form the type of a new genus.

Sp. 2. *Cicindela latipennis*, Parry.

Berrylino-viridis, fronte albido, disco subcupreo-æneo, thorace concolori; elytris tribus lateralibus lunulis flavis, alterâque fere mediâ ad suturam vergenti, apicibusque flavis. Corpus infra albo-tomentosum, pectore roseo-æneo nitenti, pedibusque concoloribus.

Long. lin. 8, lat. lin. 4.

From the Kasya Hills.

This insect appears to be somewhat abundant, as there were upwards of twenty specimens in a collection recently obtained by me.

Sp. 3. *Heptodonta Hopei*, Parry.

Viridis, fronte albido, lateribus brunneis, thorace cylindrico, elytrisque concoloribus immaculatis, apicibus sub-truncatis. Corpus infra viride nitidum, femoribus ad basin flavis, tibiis tarsisque viridi-æneis.

Long. lin. 7½, lat. lin. 3.

This new species I have named after my friend Mr. Hope, to whose genus *Heptodonta* it evidently belongs; it is the largest species I am acquainted with of that genus, and I think it most probable (like others composing this group) that it is found on trees.

Sp. 4. *Calosoma nigrum*, Parry.

Nigrum, mandibulis porrecto-falcatis, indentatis; thorace transverso-rotundato, parvo; elytris thorace quadruplo longioribus, postice dilatatis et lineato-punctatis, punctis in tribus lineis positis. Corpus infra atrum, pedibus concoloribus.

Long. lin. 14, lat. lin. 7½.

The species of *Calosoma* from the East Indies are evidently rare. *C. Chinense*, of Kirby, is the only species mentioned in Dejean's Catalogue; the Rev. F. Hope possesses another received from Bombay, and I believe there is a fourth described from the Collection of Col. Sykes.

Sp. 5. *Athyreus frontalis*, Parry.

Affinis *Athyreo Orientali* (Hope's MSS.)

Castaneus, antennis flavis, capite antice nigro, postice castaneo, thorace ad marginem anticum parum elevato, postice valde excavato, foveolâ utrinque fortiter impressâ. Elytra fere glabra. Corpus infra valde pilosum, femoribus rubris, pedibus fuscecentibus.

Long. lin. 8½, lat. lin. 5½.

There were only two specimens in my collection, one differing most considerably in size from the other.

Sp. 6. *Mimela sapphirina*, Parry.

Læte cyanea, capite marginato virescenti, thorace nitido, violaceo, elytrisque striato-punctatis sapphirinis, fascia violacea parum distincta fere ad latera posita. Corpus infra atro-piceum, femoribus pallidioribus; tibiis tarsisque viridi-cyaneis.

Long. lin. 6½, lat. lin. 5.

From the Kasya Hills.

Sp. 7. *Alaus irroratus*, Parry.

Affinis *Alao Assamensi* (Hope's MSS.), at minor.

Niger flavisque maculis minutis irroratus, capite fere atro, thorace obscuro subtilissime punctis asperso, elytris striatis, maculâ atrâ majori ad latera positâ, variisque aliis flavis per totum discum aspersis. Corpus infra obscurum, pedibus concoloribus.

Long. lin. 15, lat. lin. 6½.

From the Kasya Hills.

Sp. 8. *Eumolpus pyrophorus*, Parry.

Affinis *Eumolpo rubido* (Hope's MSS.), at major.

Violaceus, capite læte cyaneo, thorace concolori, elytris igneo-æneis, humeris apicibusque cyaneis. Corpus infra violaceum, pedibus concoloribus.

Long. lin. 6½, lat. lin. 4.

This insect is one of the most beautiful of the genus, and appears to be abundant, as there were many specimens in the collection above mentioned.

LAMIADÆ, Leach.

Subgenus *Batocera*.

Sp. 9. *Lamia Batocera Calanus*, Parry.

Atro-cinerea, antennis atris et scabrosis, thorace bimaculato, maculis albis, elytrisque ad apicem bispinosis, ad basin scabris, disco maculis octo albis notatis. Corpus infra atro-cinereum, lateribus utrinque læte albo-marginatis, pedibus cinereo-tomentosis.

Long. lin. 26, lat. lin. 8½.

From the Kasya Hills.

There is probably no family amongst the *Longicornes* in which so many new species have been lately added to our cabinets as in true *Lamia* (*Batocera* of Dejean). The last edition of the Baron Dejean's Catalogue mentions only six species, while the Cabinet of the Rev. F. W. Hope contains twenty-one species, and my own about fourteen. On first appearances it might be imagined that the species of *Lamia* might easily be separated, but I think it will prove quite the reverse, more especially when art steps in and tends to deceive the unpractised naturalist. The next insect I am about to describe is also a *Lamia*, and may be coloured by art in the usual way the Japanese paint their insects; however, I will give the description as the insect appears, and, coloured or not, it is evidently a new species.

Sp. 10. *Lamia Porus*, Parry.

Affinis *Lamiæ Roylii*, Hope.

Atro-cinerea, antennis corpore longioribus scabrosis, thorace unimaculato, scutello concolori, elytrisque ad suturam et ad latera parum mucronatis, ad basin scabris, maculisque puniceo-albis notatis.

Long. lin. 20, lat. lin. 8.

The above species is in form and markings closely allied to *Lamia Roylii;* the spots on the thorax and elytra are the colour of a rose pink.

At first I was inclined to think that art had been used in colouring the insect, but as other *Lamiadæ* have orange and yellow spots, and are found to run into red and pink, it is still possible that it may be natural. I may also remark, that in Mr. Hope's Collection there is a gigantic species received from China, named by him *Chinensis*, where the spots are to be found of the same peculiar pink colour.

XIX. *On the Asiatic Goliathideous genera* Trigonophorus *and* Rhomborhina. *By* J. O. Westwood, F.L.S., &c.

[Read 3 July, 1843.]

The Rev. F. W. Hope having received two new Indian species of Goliathideous beetles belonging to the genera *Trigonophorus* and *Rhomborhina* since the publication of my memoir on the Asiatic *Goliathides* in the 8th and 9th Numbers of my "Arcana Entomologica," affords me an opportunity of publishing a synoptic revision of the species of these two groups, the synonymy and specific distinctions of several of which have been incorrectly detailed by Dr. Burmeister in the Appendix to the Third Volume of his "Handbuch der Entomologie," p. 778—781.

TRIGONOPHORUS.

§ A. Cornu capitis inter oculos acutum in ♂, truncatum in ♀.

Sp. 1. *Tr. Nepalensis.* Atro-azurea, viridis vel viridi-cærulea; (nec secundum sexum varians), pedibus coxisque posticis fulvis; genibus, tibiarum apice tarsis antennisque nigris.

Long. corp. lin. 13—15, ♂ ♀.

Syn. *Cetonia Nepalensis.* Hope in Zool. Misc. p. 24, ♂.
Cetonia Hardwickii. Hope in op. sup. cit. ♀.
Gnathocera Hardwickii. Gory & Perch. Mon. Cet. pl. 19, fig. 1, ♀.
Cetoninus (*Coryphe Rhomborhina,* 1) *Hardwickii.* MacLeay, Cet. So. Afr. p. 30.
Coryphocera Hardwickii. Burm. Handb. d. Ent. 3, p. 232.
Trigophorus Nepalensis. Westw. Arc. Ent. 1, p. 121, pl. 29, fig. 3, ♂.

Rhomborhina? Cantori. Hope, Tr. Ent. Soc. 3, p. 63, individ. mutilat.
Trigonophorus Cantori. Westw. op. cit.

Sp. 2. *Trigonophorus Saundersii.* Oblongus, aureo-viridis, elytris tenuissime rugosulis et punctatis, capite et abdomine subtus pedibusque brunneo-castaneis, metathorace subtus viridi; pilis pedum posticorum nigris.
Long. corp. lin. 12, ♂. ♀.
Syn. *Trigonophorus Saundersii.* Westw. Arcan. Ent. 1, p. 122, pl. 29, fig. 5, ♀; Burmeister, op. cit. p. 752.

Sp. 3. *Trigonophorus gracilipes* (n. sp. Pl. V. fig. 5). Oblongo-ovalis, supra et infra viridi-aureus, parum opalescens vel olivaceus, capite viridi, punctato, elytris tenuissime punctatis, pedibus gracillimis, femoribus viridibus cupreo-micantibus, tibiisque castaneis apice nigris; pilis pedum 4 posticorum fulvis, mesosterno tenui, cornu frontali trigono, antennis tarsisque nigris.
Long. corp. lin. 14, ♂ ♀.
Habitat in Indiæ Orientalis montibus Kasya dictis.
In Mus. D. Hope.
In addition to the characters detailed above, it may be mentioned, that the mesosternum has a dark castaneous line down the centre, which is smooth, but the sides are very thickly covered with minute punctures, which is not the case in the closely allied species, *Tr. Saundersii.*

§ B. Cornu inter oculos acutum in ♀.

Sp. 4. *Trigonophorus Delessertii.* Viridi-ænea, supra sæpius olivacea, coxis posticis supra rubris.
Long. corp. lin. 18.
Syn. *Goliath. Dellessertii.* Guerin, Rev. Zool. 1839, p. 229.
Trigonoph. Del. Westw. Arc. Ent. 1, p. 122, pl. 29, fig. 4.
Coryphocera Del. Burm. Handb. d. Ent. 3, 234.

RHOMBORHINA.

§ A. Processus mesosterni apice transverso dilatato.

a. Pili pedum posticorum nigri.

Sp. 1. *Rhomborhina Mellii.* Læte viridis nitens, pedibus subtus æruginosis, supra cum tarsis nigris, apice elytrorum transversim scabriusculo.
Long. lin. 16.

Syn. *Gol. Mellii.* Gory & Perch. Mon. Cet. p. 156, p. 26, fig. 4.
Rhomborhina Mellii. Westw. Arc. Ent. p. 118; Burm. Handb. d. Ent. 3, pp. 198, 780.
Rhomborhina distincta. Hope, in Trans. Ent. Soc. 3, 63; Westw. Arc. Ent. 1, p. 118, (variety.)
Rhomborhina pilipes. Melly, MSS.; Burm. Handb. d. Ent. 3, p. 779; Westw. Arc. Ent. 1, 192, (variety.)

Sp. 2. *Rhomborhina apicalis.* Læte cupreo-fulva, elytris apice scabris et nigris, tibiis tarsisque nigris, thorace subtus nigro (metasterno profundè canaliculato), abdomineque cum femoribus nigris vel nigro-æneis ♂ ♀.
Long. corp. lin. 15.
Syn. *Rhomborhina apicalis.* Westw. Arc. Ent. pl. 30, fig. 2; Burm. Handb. d. Ent. 3, p. 779.

Sp. 3. *Rhomborhina hyacinthina.* Nigra, nitida, capite pronoti limbo inferiori, pectore, pedibusque cærulescentibus, tarsis nigris.
Long. corp. lin. 16 ♂ ♀.
Syn. *Rhomborhina hyacinthina.* Hope, in Trans. Ent. Soc. 3, 62; Westw. Arc. Ent. 1, pl. 30, fig. 1; Burm. Handb. d. Ent. 3, 199.

b. Pili pedum posticorum fulvi.

Sp. 4. *Rhomborhina opalina.* Olivaceo-ænea, cupreo plus minusve tincta, scutelli apice sæpius æneo; antennis tarsisque nigris ♂ ♀.
Long. corp. lin. 13, 15.
Syn. *Rh. opalina.* Hope, in Syn. Col. Nepal. p. 24; Gory & Perch. Mon. Cet. pl. 26, fig. 5; Westw. Arc. Ent. 1, p. 118.
Nec *Rh. opalina.* Burm. Handb. d. Ent. 199 = *Rh. Japonica.*

§ B. Mesosterni processus haud dilatatus, subquadratus, vel subrotundatus (clypeus magis quadratus).

Sp. 5. *Rhomborhina resplendens.* Viridis, elytrorum disco circa scutellum nigro. ♂ ♀.
Long. corp. lin. 16.
Syn. *Cetonia resplendens.* Schwartz, in Schonh. Syn. Ins. 1, 63, App. 51.
Rhomb. respl. Westw. Arc. Ent. 1, 118; Burm. 3, 198.

Goliathus Heros. Hope, Latr.; Gory & Perch. Mon. Cet. pl. 26, fig. 3.

Sp. 6. *Rhomborhina dives* (n. sp. Pl. V. fig. 5.) Tota lætissime viridi-aurea, nitida; clypeo marginato, viridi, tenuissime punctato; elytrorum disco impunctato, apice cum podice parum rugosulo, metasterni lateribus haud punctatis, tarsis antennisque nigris, pilis tibiarum intermediarum brevibus nigris.

Long. corp. lin. 16.

Habitat in Indiæ Orientalis montibus Kasya dictis.

In Mus. Hope.

Note.—The sides of the mesosternal process are nearly parallel, and the apex produced and slightly angulated at the tip.

Sp. 7. *Rhomborhina Japonica.* Brevis, lata, supra obscure brunneo-olivacea, subtus magis varia, capite magno, pedibus brevibus, obscurioribus, latis; elytris crebrissime punctulatis, punctis in strias haud dispositis; scutello concolori, pilis pedum 4 posticorum fulvis ♀.

Long. corp. lin. 13.

Habitat in Japonia.

Syn. *Rhomborhina Japonica.* Hope, in Trans. Ent. Soc. 3, p. 62; Westw. Arc. Ent. 1, p. 30, fig. 4.

Rhomb. opalina. Burm. Handb. d. Ent. 3, pp. 199, 779.

Sp. 8. *Rhomborhina clypeata.* Viridis, rude punctulata; thoracis lateribus elytrorumque disco postice magis auratis, clypeo magno, antice subtruncato, punctis elytrorum in strias dispositis, pilis pedum posticorum fulvis ♀.

Long. corp. lin. 12½.

Habitat in Japonia.

Syn. *Rh. clypeata.* Westw. Arc. Ent. 1, pl. 34, fig. 3; Burm. Handb. d. Ent. 3, p. 199.

§ C. Mesosterni processus latitudine angustior.

Sp. 9. *Rhomborhina microcephala.* Robusta, brunneo-olivacea, nitidissima, capite parvo, clypeo subquadrato, tibiis anticis ♀ angustis mediocriter bidentatis, pedibus cyaneo-nigris, tibiis 4 posticis nigro-setosis ♀.

Long. corp. lin. 13, 14.

Syn. *Rhomborhina microcephala.* Westw. Arc. Ent. 1, pl. 30. fig. 3.

Anomalocera Mearesii. Burm. Handb. d. Ent. 3, p. 781.

The habit of this species is so entirely that of the other *Rhomborhinæ* that I cannot agree with Dr. Burmeister in removing it to the genus *Anomalocera*, especially as the form of the mesosternal process is variable in the other *Rhomborhinæ*. It is proper, however, to add, that females only have yet been received of this species. The male, when known, will more satisfactorily enable us to settle the question.

XX. *Description of an Asiatic Genus of Lamellicorn Beetles belonging to the Family* Rutelidæ. *By* J. O. Westwood, F.L.S., &c.

[Read July, 1841.]

Family RUTELIDÆ.

Genus Parastasia, Westw. (Pl. VI. fig. 1, 2, 3.)

Corpus supra valde gibbosum, pedibus brevissimis.

Caput mediocre humile, antice in medio bituberculatum, tuberculoque minori utrinque supra originem antennarum (fig. 2*a*).

Antennæ breves, 10-articulatæ.

Labrum bilobum, sub clypeum bilobum, fere occultum, ciliatum (fig. 2*b*, 2*c*).

Mandibulæ (fig. 2*d*, 2*e*) corneæ, ad apicem extus curvatæ (fig. 2*c*), angulo externo in dentem subrecurvum et prominentem producto, margine externo in medio subangulato, interno membranaceo et ciliato, portio molaris (fig. 2*f*) parva transverse strigosa, carina elevata fere rotundato-ovalis in medio notata.

Maxillæ corneæ, lobo externo producto tridentato (interdum 4-dentato), dente interno obsolete tridenticulato vel trifido (inde maxillæ 5- vel 6-dentatæ evadunt) (fig. 1*a*, 1*b*, 2*g*). *Palpi* maxillares 4-articulati, articulo 2do præcedenti majori; apicali longo-ovali, apice subacuto (fig. 2*g*).

Mentum oblongum, lateribus versus basin rotundato-dilatatis (fig. 2*h*). *Palpi* labiales ante apicem insertæ, 3-articulatæ. *Labium* supra vix videas, margine antico ciliato.

Prothorax transverso-ovalis, valde elevatus et gibbus, angulis posticis parum productis, et humero elytrorum fere tegentibus; margine postico integro.

Scutellum mediocre, triangulare.

Elytra brevia gibbosa, anum haud tegentia.

Mesosternum (fig. 2*i*, 2*l*) inter pedes medios parum productum.

Pedes brevissimi; *femora* antica valde incrassata, tibiis brevissimis intus ad basin unidentatis, extus tridentatis; tarsis anticis in ♂ brevibus crassis, articulo 5to inflato, unguibus inæqualibus, uno simplici, altero crasso bifido (fig. 1*c*, 1*d*); tarsis anticis unguibusque in ♀ (fig. 2*k*) simplicibus, his æqualibus. *Pedes* intermedii in ♂ (fig. 1*e*) valde incrassati; tibiis setosis; in ♀ graciliores (fig. 2*l*), tarsorum articulis crassis ♂, tenuibus ♀, penultimo intus in spinam producto, unguibus in utroque sexu inæqualibus, uno simplici, altero majori intus unidentato; dente in ♂ lato obtuso. *Pedes* postici crassissimi, tibiis in ♂ gracilioribus quam in pedibus intermediis (fig. 1*f*); tarsis in utroque sexu gracilioribus, unguibus inæqualibus, uno integro, altero bifido (fig. 2*m*, pes posticus ♀).

This genus appears to be confined to the islands of the Indian Ocean, especially those of the Philippine range, whence several species have been brought by Mr. H. Cuming. This locality is highly interesting, since every species of the family to which the genus is strictly referable has hitherto been brought from the New World.* The form and horny structure of the parts of the mouth, and especially the produced mesosternum, prove that this genus is most nearly allied to the family *Rutelidæ*, as restricted by the removal of *Hexodon*, *Cyclocephala*, and some other groups which have not the produced mesosternum and the brilliant colours of the legitimate *Rutelidæ*. It appears most allied to *Chasmodia* in the bituberculated clypeus, more elongated galea to the maxillæ, and slighter toothing of the mandibles; but it is sufficiently distinct from all the allied genera in its details, as may be easily conceived when its geographical locality is taken into consideration.

I am indebted to Dr. Burmeister for calling my attention to this interesting genus, and for the suggestion of a generic name indicative of its representative character; and I take the present

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* We must not however overlook the African genus *Phænomeris* of Hope (*Eupyga* of Mannerheim). The genus *Cælidia* of Dejean's Catalogue cannot at present be ascribed with certainty to the family *Rutelidæ*. See Burmeister's Handb. d. Ent. iv. p. 371.

opportunity of expressing the gratification as well as instruction which English Entomologists have received by his visit to us during the present summer.

The generic characters are derived from a female of *P. canaliculata* and a male of *P. Westwoodii.*

The following are descriptions of the species of this genus.

Sp. 1. *Parastasia canaliculata,* Westw. (Pl. VI. fig. 2.)

Nigra nitida, elytris fulvo-variegatis, plagis duabus elevatis obliquis utrinque versus scutellum positis.

Long. corp. lin. 9½.

Habitat in insulis Philippinensibus. D. Cuming.

In Mus. Dom. Hope.

Caput nigrum, nitidum, rugoso-punctatum, punctis interdum in utroque latere confluentibus. Antennæ nigræ, articulo basali piceo. Prothorax in parte antica punctatus, postice vero lævis nitidus, impressione parva utrinque versus medium marginis lateralis, alteraque versus angulos posticos in margine postico. Elytra lævia, nigra, nitida, singulo ad basin versus scutellum, tuberculis duobus elongatis elevatis, coloris fulvi, utrinque canaliculatis; plaga parva quadrata hujus coloris ex medio tuberculi externi evadit, quæ versus marginem lateralem postice extensa, et in maculam majorem fulvam dilatata, plagam denique ovalem obliquam in discum postice utriusque elytri videas. Corpus subtus nigrum, setulis fulvis in pedibus anticis et metasterno paullo indutum.

Sp. 2. *Parastasia rufopicta,* Westw. (Pl. VI. fig. 3.)

Nigra, nitida, tenuissime punctata, fascia irregulari ad basin elytrorum, in singulo elytro antice biramosa et postice in medio late emarginata.

Long. corp. lin. 11, lat. elytrorum lin. 6.

Habitat in India Oriental. Sylhet.

In Mus. Dom. Stainforth, nunc Parry.

Corpus crassissimum. Caput et prothorax nigri. Clypeus bicornutus et fronte carina elevata (in medio obsoleta) divisa. Caput valde punctatum. Prothorax punctis minutis in parte antica et lateralibus, disco et parte postica fere lævibus, punctis duobus majoribus versus medium fossulisque duabus rotundatis in medio lateris versus marginem. Elytra nigra, fascia irregulari undata versus basin notata, ad apicem scutelli, marginem lateralem haud attingente, hæc fascia ramos duos fere rectos in singulo elytro antice emittit, et postice dentata, et in medio singuli elytri valde emarginata, tubercula duo elevata picea ad apicem elytrorum. Pedes ut in reliquis, nigri. Corpus etiam subtus nigrum. Pygidium piceum, opacum.

This is a considerably larger species than any of the others described in this memoir.

Sp. 3. *Parastasia bipunctata*, Westw.

Nigra, prothorace rufo, nigro-bipunctato, elytris nigris, basi fulvis, singulo maculis duabus nigris.

Long. corp. lin. 8¼.

Habitat in insulis Philippinensibus. D. Cuming.

In Mus. Britann.

Nigra. Prothorax rufum, macula parva rotundata nigra impressa utrinque versus medium marginis lateralis. Scutellum rufum, marginibus obscurioribus. Elytra nitidissima, basi supra versus scutellum haud elevato-tuberculata, dimidio basali, sutura, plaga media postica apiceque ad suturam fulvis, macula parva oblonga in medio singuli ad basin, alteraque ovali versus angulum humeralem nigris. Podex et margines laterales segmentorum abdominalium rufi.

Sp. 4. *Parastasia discolor*, Westw.

Nigra, prothorace rufo, elytris castaneo-rufis, basi scutelloque obscurioribus.

Long. corp. lin. 7¼.

Habitat in insulis Philippinensibus. D. Cuming.

In Mus. Britann.

Nigra. Caput punctatum, antice subacute bifidum. Pronotum rufum, tenuissime punctatum; medio marginis postici lævi, puncto parvo rotundato impresso obscuro in medio utriusque lateris paullo ante marginem. Elytra castaneo-rufa, basi paullo obscuriora nitida, obsolete punctato-striata. Scutellum nigrum. Abdomen lateribus rufis, segmento ultimo supra rufo.

Sp. 5. *Parastasia nigriceps*, Westw.

Luteo-fulva, capite, prothoracis maculis duabus, alterisque duabus ad basin elytrorum tarsisque nigris.

Long. corp. lin. 5½.

Habitat in insulis Philippinensibus. D. Cuming.

In Mus. Britann.

Luteo-fulva. Caput nigrum, antennæ nigræ, articulo basali fulvo. Prothorax subobscurus, puncto parvo utrinque versus marginem lateralem, maculisque duabus disci postice, nigris; maculaque parva ejusdem coloris in medio basi singuli elytri pone scutellum haud extensa. Tibiæ et articuli tarsorum apicibus nigricantes. Elytra vix lineato-punctata.

Sp. 6. *Parastasia confluens*, Westw.

Nigra, prothorace in medio rufo et impresso, elytris obscure rufis, singulo maculis duabus luteis ovalibus contiguis ante medium positis.

Long. corp. lin. 5¾.

Habitat in insulis Philippinensibus. D. Cuming.

In Mus. Britann.

Nigra. Caput valde punctatum. Antennæ fusco-nigræ. Prothorax niger, punctis validis impressis, præsertim in parte antica, punctoque majori utrinque in medio lateris paullo intus marginem; disco longitudinaliter impresso rufo. Scutellum rufum. Elytra nitida, punctis parum distinctis in striis dispositis; obscure rufa, disco paullo pallidiori, singulo inter medium et scutellum maculis duabus ovalibus magnitudine inæqualibus fulvis nigro-cinctis. Corpus infra nigro-fuscum, fulvo-pilosum.

Sp. 7. *Parastasia binotata*, Westw.

Nigra, elytrorum singulo macula magna prope scutellum fulva.

Long. corp. lin. 8¼.

Habitat in insula Java.

In Mus. DD. Melly and Curtis.

Nigra. Caput punctatissimum. Prothorax minus punctatum, præsertim in parte postica nitidiori, puncto majori impresso utrinque versus medium marginis lateralis. Elytra nitidissima nigra, macula magna rotundata ad basin singuli prope scutellum, fulva. Podex tenuissime strigosus et punctatus. Antennæ articulis mediis piceis. Corpus subtus, præsertim thorace, fulvo-pilosum.

Sp. 8. *Parastasia Horsfieldii*, Westw.

Nigra, elytris postice piceis.

Long. corp. lin. 9½, lat. elytr. lin. 5½.

Habitat in insula Java. D. Horsfield.

In Mus. Soc. Merc. Ind. Orient. Londini.

Tota nigra, nitidissima. Caput punctatum, punctis in parte antica majoribus et subconfluentibus, clypeo acute bifido mandibulisque acutis et valde prominentibus. Pars postica capitis lævis. Prothorax tenuissime punctatus, antice et ad angulos posticos punctis numerosioribus; marginibus lateralibus in medio angulariter prominentibus, puncto magno impresso, intus marginem angulisque posticis subacutis punctisque duobus minoribus impressis. Elytra nitidissima, postice piceo-tincta, lævissima. Podex punctatissimus. Corpus infra griseo-pilosum. Pedes nigri, tarsis anticis brevissimis.

Sp. 9. *Parastasia bicolor*, Westw.

Nigra, prothorace miniato.
Long. corp. lin. 6, lat. elytr. lin. 3.
Habitat in insula Java. D. Horsfield.
In Mus. Soc. Merc. Ind. Orient. Londini.

Caput nigrum, clypeus in cornubus duobus conicis brevissimis erectis elevatus; caput antice fortiter punctatum, parte postica lævi. Antennæ et trophi picei. Mandibulæ minus prominentes. Prothorax lateribus rotundatis; miniatus, nitidissimus, convexus, tenuissime punctatus, puncto majori utrinque in medio lateris alteroque minori versus angulos posticos rotundatos. Elytra nigra, nitidissima, sub lente striis numerosis punctorum minutorum, punctisque alteris sparsis. Abdomen segmento penultimo nigro, ultimo fulvo nitido, tenuiter punctato. Pedes nigri, basi picei. Prothorax infra piceo-rufus. Corpus infra nigrum, pilis brevibus fulvis, segmentis terminalibus fulvis.

Sp. 10. *Parastasia Westwoodii*, Burm. MS.

(Pl. VI. fig. 1.)

Piceo-brunnea, sordide opaca, thorace utrinque plagis obliquis fasciâque obscurâ in medio elytrorum nigris, antennarum basi, femoribus tibiisque lucidioribus.
Long. corp. lin. 5$\frac{2}{3}$.
Habitat in insula Sumatra. D. Raffles.
Mus. Soc. Zool. Lond.

Caput brunneo-fuscum, valde punctatum; clypeo antice in angulos duos acutos subrecurvos producto, mandibulis parum prominulis. Antennæ ferrugineæ, clava obscura, pronotum opacum, punctatissimum, piceo-brunneum, linea tenui longitudinali dorsali fulvescescenti, postice parum dilatata, utrinque striga nigra ex angulis anticis pronoti, fere ad basin scutelli ducta, marginata; striga altera obliqua utrinque e

medio lateris et cum apice strigæ prædictæ connexa; versus medium marginis lateralis utrinque punctum magnum adest. Elytra prothorace vix latiora, obscura, brunneo-picea, fascia media indistincta nigricanti notata, valde punctata, punctis in utroque elytro strias vix regulares circiter 16 formantibus; podex tenue setosus. Corpus subtus nigricans, prosterno pedibusque rufescentibus, tarsis obscurioribus ♂.

Obs.—One of the maxillæ has four teeth, two being intermediate and of equal size, the lower tooth being scarcely trifid; while the other maxilla has only one intermediate tooth, the inferior tooth being more strongly trifid.

This description is derived from a single specimen in the Collection of the Zoological Society, which was examined by Dr. Burmeister, who applied to it the name of *Hyppothetis Westwoodii.* Not having seen this insect until several months after Dr. Burmeister had left England, I was not aware that a generic name had been given by that author, and as in the interim an account of this paper had appeared in print, I have not thought it necessary to reject the name which I had myself given to it, upon a suggestion from Dr. Burmeister himself.

Postscript.—Since the preceding paper was read some additions have been made to our knowledge of the genus *Parastasia.*

M. Guérin-Meneville, in the Zoological Supplement to M. Delessert's "Souvenirs d'un Voyage dans l'Inde," has described a species of *Parastasia* under the name of

Sp. xi. *Parastasia obscura*, G.-M., in Op. cit. p. 39, and Pl. XI. fig. 1.

"Nigra, punctata, scutello, elytris basi et margine exteriori fusco-fulvis, femoribus apice tibiis tarsisque fusco-fulvescentibus.

"Long. 12, larg. 7 millim.

"Habitat Pulo Penang."

As the specimen described by M. Guérin possesses simple and equal sized ungues in the anterior fore feet, it is evidently a female, that sex being distinguished by that character from the males; the subgeneric name of *Carterosoma*, therefore, proposed by M. Guérin-Meneville for his insect, must be abandoned.

Dr. Burmeister has also described an additional species in his "Handbuch der Entomologie," under the name of

Sp. xii. *P. femorata*, Burm. in Op. cit. vol. iv. p. 375.

"Nigra, nitida, antennarum basi, femorum medio tibiisque intus fulvis.

"Long. 4‴ ♂.

"Habitat in insula Java."

Professor Erichson has also favoured me with the following descriptions of three species of the genus, contained in the Royal Museum of Berlin.

"Sp. xiii. *Parastasia scutellaris*, Erichson in litt.

"Supra lutea, capite scutelloque nigris, infra nigra, abdominis lateribus luteis.

"Long. 7 lin.

"Caput punctulatum, inter oculos carina sinuata interceptum, apice bidentatum, nigrum, nitidum. Antennæ nigræ, clava oblonga. Thorax leviter convexus, testaceo-luteus, nitidus, sparsim subtiliter punctatus. Scutellum nigrum, nitidum, parce subtilissimeque punctulatum. Elytra striatim punctata, substriata, lutea. Abdomen supra et lateribus testaceum, ventre nigro. Pectus et pedes nigra, coxis posticis testaceis. Metasterni mucro brevis, triangularis.

"Habitat in ins. Riouw, prope Sumatram.

"Mus. Reg. Berolin.

"Sp. xiv. *Parastasia dimidiata*, Erichson in litt.

"Nigra, nitida, elytris postice luteis, pygidio rufo.

"Long. 4½ lin.

"Nigra, nitida. Caput lineis undulatis rugulosum, antice transversum bituberculatum, apice bicuspidatum, cuspidibus compressis recurvis. Thorax gibbus, antice transversim rugosus, disco posteriore lævi. Scutellum læve. Elytra punctato-striata, medio subimpressa, postice late testacea. Pygidium rufum. Metasterni mucro elongatus, acutus, leviter incurvus.

"Habitat in ins. Riouw, prope Sumatram.

"Mus. Reg. Berolin.

"Sp. xv. *Parastasia nitidula*, Erichson in litt.

"Nigra, nitida, elytris fusco-æneis, politis.

"Long. 4 lin.

"Nigra, nitida. Caput undulato-strigosum, antice tuberculo compresso armatum, antice bicuspidatum, cuspidibus compressis, acutis, subrecurvis. Thorax gibbulus, antice et lateribus punctatus, disco posteriore lævigato. Scutellum lævigatum. Elytra fusco-ænea, polita, striato-punctata, striis postice abbreviatis, ante medium transversim impressa. Pygidium convexum, transversim rugosum. Metasterni mucro elongatus, acutus, incurvus.

"Habitat in ins. Bintam, prope Sumatram.

"Mus. Reg. Berolin.

"Omnes sunt genuinæ *Parastasiæ*, neque ad *Barymorpham Guér.* referendæ."

M. Guérin-Meneville, in the work quoted above, has also described an insect closely allied to *Parastasia*, possessing however simple and equal claws to all the tarsi. The following are the characters of this section or subgenus.

BARYMORPHA, Guérin.

"Corps court, épais, presque globuleux. Chaperon bidenté, à dents relevées. Antennes de dix articles. Mandibules à sommet bilobé. Machoires armées de six fortes dents ou épines arquées. Pattes courtes, jambes antérieures épaisses, un peu aplaties, armées de trois dents à l'extremité. Tarses courts, assez grêles, à dernier article beaucoup plus court que les quatre précédents, avec les crochets plus courts que cet article, egaux arqués et simples."

Sp. 1, (xvi.) *Barymorpha bimaculata*, Guérin, in Op. cit. p. 41, Tab. XI. fig. 2.

"Rufo-castanea, capite nigro; thorace maculis duabus nigris notato; elytris flavo-nebulosis; pygidio nigro rufoque variegato.

"Long. 10, larg. 10 mill.

"Habitat Pulo Penang."

Professor Burmeister has adopted this group as a second section in the genus *Parastasia*, and has added the description of another species.

Sp. 2, (xvii.) *Parastasia* (*Barymorpha*) *melanocephala*, Burm. in Op. cit. p. 377.

"Rufo-castanea, nitidissima, capite nigro.

"Long. 8‴ ♀.

"Habitat in insula Java."

XXI. *Descriptions of some new Species of Coleoptera from Adelaide in New Holland. By the* Rev. F. W. Hope, F.R.S., President of the Entomological Society, &c.

[Read 6th June, 1842.]

Having lately received through the post office a small collection of insects forwarded to this country from Adelaide in New Holland by one of the members of this Society, Mr. Fortnum, I describe the following species, prefacing the descriptions with the following extracts from Mr. Fortnum's letter, dated from that settlement on 10th August, 1841 :—

"From what little observations I have made of the Entomology of this country, it is very singular: the great scarcity of all forms of predaceous land beetles, those few that are found being chiefly under the loose bark of trees; a large black species is found under dung, logs, &c.: in fact *Coleoptera* generally are far from abundant: the most conspicuous and numerous insects being the ants, which appear to me in a great measure to replace the predaceous *Coleoptera*. I send you a species, which will give some idea of their powers; it stings with as much severity as the common wasp with you. The number of ants is surprising, and the great variety of forms among them is equally so. I have observed at least thirty species. The aquatics appear more numerous. The *Hydröus* (?) sent is from the salt (sea) water creek of the port; the others from fresh water holes inland. *Staphilinidæ* are rare. Of *Buprestidæ* I have only seen those sent. The *Onthophagus* is the only one I have seen; one individual was taken flying round human fæces: the *Hister* also. I send you all the *Lamellicornes* I have as yet observed. The same is to be said of the *Longicornes*, with the exception of a fine *Prionus*, which would have taken too much room. The little *Cassida* was found under the bark of the pine (*Callitris*). I think also that the numerous species of spiders, found here in every situation, perform in a great measure the part of the predaceous beetles. I have done as little in *Orthoptera* as in *Coleoptera*. There is a species of *Forficula*. Of *Blatta* there are a great number; of *Mantis* some interesting small forms, the males winged, ♀ apterous; of *Phasma* a fine species, near *Phyllium*; but I have seen few species. I have the larva of an *Xya* from the bed of a creek, and two fine species of *Gryllacris*. On my first arrival I observed an individual of *Mantispa*, which unfortunately evaded me; but I am certain of its form, for I observed it on a leaf, and was particularly noticing a peculiar motion of its raptorial legs, when it suddenly darted off. I am thus particular in my mention of it, from a passage I happened to open upon in Mr. Swainson's volume on the Insects (Lardner's Cyclopedia), which I have just received, and in which it says, 'of *Mantispa* the greatest number of species appears to occur in America, although it is found all over the world, *excepting New Holland*.' I have two species of *Myrmeleon*. In the other orders only a few straggling species, none of any remarkable forms. I have also three species of scorpions. I trust that as soon as I become settled I shall not only be enabled to collect the specimens, but also to make some observations on their habits, &c., and also to be enabled to collect the animals, birds, plants, &c. of this fine country. The animals here evidently possess much interest. I have an apparently new species of *Jerboa* (*Dipus*). totally different from that obtained by Major Mitchell, and figured in his narrative; mine is fully twice the size. The birds, too, present great variety and beauty. The reptiles are very numerous; I know about twenty species of lizards.

" The voyage out here was very pleasant. Nothing of particular interest occurred, except that when off the coast of Africa, about 300 miles from land, (Monday, 7th September, 1840,) a butterfly visited us: it looked like a frittillary, but we could not catch it. Long. 21° 25′ W., lat. 21° 54′ N. Again, on Sunday the 13th, long. 25° 34′ 30″, lat. 12° 15′, three dragon flies, apparently true *Libellulæ*, with red abdomens, hovered about us, and I caught a *Noctua* off one of the sails: and the next day the dragon flies were still with us, and another butterfly, flying like *Vanessa*.

" I arrived on the 13th of December, after a passage of four months and a week: we did not touch anywhere on the voyage. I am happy to say my collection of *Orthoptera*, which I brought here, arrived perfectly safe. This is certainly a beautiful country; the plains about Adelaide are now looking like a park: in the summer (December, January, &c.) they are parched with the heat of the sun: a few days after my arrival the thermometer stood at 110° under a verandah in the town. The scenery up the hills of the Mount Lofty range, where I at present am living, is very beautiful, and has the advantage of being cooler in the summer than the plains. Yesterday (9th August) it snowed a little, and people were all complaining of the 'intense cold.' But how comparative our feelings are! when the thermometer here stands at from 45° @ 50° every one complains of the cold, and great coats are in demand. The land about Adelaide is very fertile, and the wheat, &c. everywhere looks excellent, and abundant crops are expected."

Fam. BUPRESTIDÆ.

Sp. 1. *Stigmodera Fortnumi.*

Violacea, capite viridi, thorace punctulato, lateribus flavo-marginatis, medio purpurascenti. Elytra violacea, striato-punctata, ternisque latis fasciis flavis insignita. Corpus infra viride, lateribus thoracis, pectore segmentisque abdominis utrinque flavo notatis. Pedes virides.

Long. lin. 18, lat. lin. 8.

This magnificent species I name in honour of Mr. Fortnum, one of the most zealous Entomologists of this Society. His ardour in the pursuit of science induced him to visit the Australian continent, if I may so call it, and I am happy to say that his expectations have been in no way disappointed, as far as regards Zoology. To his exertions many naturalists are greatly indebted, and much may be expected from him. The above insect was taken at the new settlement named Adelaide.

Sp. 2. *Conognatha Bremei.*

Nigra, capite fere trigono æneo, medio fortiter impresso. Thorax bronzeus, marginibus externis subimpressis, disco punctatissimo, lineâ longitudinali medio vix impressâ, fovea utrinque fortiter insculpta. Elytra nigra, binis fasciis rubris, lateribus externis anticè concoloribus. Corpus infra æneum et nitidum, pedibus concoloribus et punctatis.

Long. lin. 9, lat. lin. 3½.

This beautiful species I name in honour of the Marquis de Breme, the author of several interesting Entomological treatises.

Sp. 3. *Conognatha coccinata,* Hope.

Coccinea, capite viride, antennisque concoloribus. Thorax lætè miniatus punctatus, maculisque ternis viridibus insignitus, binis externis minutis, medioque majori fere rotundato. Elytra coccinea, tribus fasciis lætè viridibus ornata, prima basale, duobus aliis fere apicalibus, viridi maculâ in singulo elytrorum inter basalem fasciam et apicales valdè conspicuâ. Corpus infra sanguineum, pectore segmentisque abdominis utrinque viridi-maculatis, pedibus concoloribus.

Long. lin. 5¼, lat. lin. 2.

Sp. 4. *Stigmodera Parryi.*

Nigra, capite anticè argenteo, antennis æneis, serratis. Thorax niger, punctatus. Elytra miniata, ad basin maculis ternis atris insignita, binis externe humeralibus et elongatis, tertioque infra scutellum posito, fere rotundato. Circa medium disci semicircularis macula ad suturam globum atrum format, apex elytrorum ater est et subbidentatus. Corpus infra chalybeo-æneum et punctatum, pedibus concoloribus.

Long. lin. 3½, lat. lin. 1.

In Mus. Dom. Hope.

Sp. 5. *Stigmodera Guerinii.*

Violacea, thorace nigro, marginibus auratis. Elytra anticè et posticè nigro-violacea, in medio fasciâ latâ flavâ insignitâ. Corpus infra lætè violaceum, pedibus concoloribus.

Long. lin. 3, lat. lin. 1¼.

This elegant little *Buprestis* I have named in honour of Monsieur Guérin, the editor of the "Revue Zoologique" and other important Entomological works.

Fam. CANTHARIDÆ.

TMESIDERA, Westwood.

Sp. 6. *Tmesidera violacea,* Hope.

Violacea, capite nigro nitido, antennis concoloribus. Thorax niger, antice capite latior, angulis anticis rotundatis, posticis fere rectis. Dorsum lineâ longitudinale foveâque utrinque fortiter impressa insignitum. Elytra violacea, varioloso-rugosa. Corpus infra rubrum. Pedes antici nigri, quatuor postici concolores, femoribus rubris exceptis.

Long. lin. 5¼, lat. lin. 1¾.

Sp. 7. *Tmesidera assimilis.*

Nigra, antennis pedibusque concoloribus et nitidis. Thorax vix impressus. Elytra rubro-testacea, lineis parum elevatis.

Long. lin. 4½, lat. lin. 1¼.

The present insect closely approaches the type of the genus; it differs considerably in magnitude, and in many points cannot be compared with *rufipennis.* It inhabits Western Australia.

Sp. 8. *Tmesidera rubricollis.*

Nigra, thorace rubro, elytris atris subrugosis, pedibusque concoloribus. Corpus infra nigrum.

Long. lin. 3, lat. lin. 1.

I am aware of three other species of the above genus, but am unable to describe them, from the imperfect state in which they reached this country.

Fam. CARABIDÆ.

Sp. 9. *Calosoma Curtisii.*

Viride, thorace fere glabro, posticè fortiter impresso, elytris striato-punctatis et rugosis, punctisque impressis, in triplici serie ordinatis. Corpus infra piceo-castaneum, viridique colore tinctum; pedibus antennisque piceis, femoribus punctulatis.

Long. lin. 10, lat. lin. 4.

This singular insect was sent to me by Mr. W. Sharpe MacLeay. It is well figured by the late excellent artist Mr. C. Curtis; and I have much pleasure in naming it after that unobtrusive individual; hoping that his name will not be forgotten as an artist or as an Entomologist.

Sp. 10. *Calosoma Australe.*

Nigro-æneum, palpis articulisque quatuor primis antennarum piceis. reliquis flavo-piceis et tomentosis. Thorax subcordatus punctulatus, posticè utrinque fortiter impressus. Elytra nigro-ænea confertim punctato-striata, punctis subæneis in triplici serie ordinatis. Corpus infra nigro-piceum, pedibus concoloribus, tibiisque subciliatis.

Long. lin. 10, lat. lin. 3½.

Fam. HETEROMORPHIDÆ, Hope.

SILPHOMORPHA, Westwood.

Sp. 11. *Silphomorpha Orectocheiloides,* Hope.

Totum corpus supra nigro-piceum, lateribus thoracis marginibusque elytrorum pallidioribus, infra brunneo-piceum, antennis pedibusque concoloribus.

Long. lin. 6¼, lat. lin. 2¼.

The above insect is from Adelaide.

ADELOTOPUS, Hope.

Sp. 12. *Adelotopus Fortnumi*, Hope.

Niger, marginibus lateralibus thoracis piceis, palpis ferrugineis. Corpus infra atro-piceum, segmentis abdominis posticè brunneo-piceis, pedibus concoloribus.
Long. lin. 3½, lat. lin. 1½.
Habitat circa Adelaida.

ACINOPUS, Ziegler.

Sp. 13. *Acinopus Australis*, Hope.

Niger, marginibus externis thoracis postice lætè cupreis. Thorax magnus, transverse subrugosus. Elytra fere glabra, marginibus subæneis et punctatis. Corpus infra nigrum, femoribus posticis parum incrassatis.
Long. lin. 9, lat. lin. 2½.

This singular insect is closely allied to *Acinopus* of Ziegler, in which it accords in its most essential characters. I know of no species however with the elytra smooth; the posterior thighs also are more incrassated than in *Acinopus*, it will therefore probably in future be formed into a subgenus.

Fam. BYRRHIDÆ.

Sp. 14. *Anthremis Australis.*

Niger, capite atro, thorace medio concolori, marginibus externis albis, elytris tribus fasciis undatis albis, corpus infra nigrum.
Long. lin. 1¼, lat. lin. ½.

Fam. MELYRIDÆ.

Sp. 15. *Dasytes nigricans*, Hope.

Ater, pubescens, thorace longioribus capillis obsito. Elytra atra brunnea, marginibus externis pallidioribus.
Long. lin. 1¾, lat. lin. ¾.
Habitat in Adelaida.

Sp. 16. *Dasytes fuscipennis.*

Ater, antennis rubris, thorace pubescenti nigro. Elytra fusco-testacea punctata, pedibus concoloribus.
Long. lin. 1¾, lat. lin. ¾.

Fam. PSELAPHIDÆ.

ARTICERUS, Dalman.

Sp. 17. *Articerus Fortnumi.*

Sanguineus, capite elongato ovato, fronte rotundato. Thorax fere quadratus, angulis anticis rotundatis medio impressus. Elytra thorace latiora, marginibus posticis nigricantibus. Abdomen posticè rotundatum, utrinque maculâ nigrâ insignitum; pedibus robustis et incrassatis.

Long. lin. ½, lat. lin. ¼.

I believe this is the first time that *Articerus* has been taken in a recent state: the species described by Dalman was found either in resin or amber. I am inclined to consider it as belonging to the resins, and that it could not be found in amber. The above species is named in honour of our fellow Entomologist, Mr. Fortnum, now actively collecting for us at the Adelaide settlement. It was found in the nest of a species of ant which is unknown to us.

Fam. TENEBRIONIDÆ.

TRIGONOTARSUS,* Hope.

Novum genus forma fere orbicularis. *Cælo* affinis *Escholtzii.* *Antennæ* 11-articulatæ, extrorsum magnitudine increscentes, ternis ultimis majoribus. *Caput* clypeo integro, ultimo articulo palporum cylindrico, apice acuto præcedenti majori. *Thorax* anticè emarginatus, scutellum nullum. *Elytra* posticè acuminata. *Tibiæ* anticæ trigonæ, externèque dentatæ, reliquæ simplices.

Sp. 18. *Trigonotarsus Australis*, Hope.

Fuscus, antennis apice piceis, thorace piloso, elytrisque concoloribus. Corpus infra squalidum et tomentosum; tibiis anticis rubris, antrorsum trigonis, externè dentatis, dente majori in medio posito.

Long. lin. 2½, lat. lin. 1½.

I have thought proper to make the above insect the type of a new genus; it approaches nearly to *Cælus* of Escholtz. As it is my intention to figure it shortly, I pass on to other *Heteromera* of New Holland.

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* Τριγωνος, triangular—ταρσος, tarsus—*Trigonotarsus.*

Sp. 19. *Tagenia funerosa*, Hope.

Nigra, antennis pilosis, capite anticè depresso, thorace parum convexo, elytris striato-punctatis et hirsutis, pedibusque nigris.

Long. lin. 2, lat. lin. ½.

This insect inhabits Van Diemen's Land.

Sp. 20. *Tagenia leucospila*, Hope.

Nigra, antennis incrassatis et pilosis, capite punctato albisque capillis asperso. Thorax transversè impressus et punctulatus. Elytra fortiter punctata, punctis duplici serie signatis lineisque aliquot elevatis pilosis, variisque maculis albis pilosis per discum aspersis, pedibusque nigris.

Long. lin. 2, lat. lin. ½.

This species occurs at Port Essington and at the Swan River, and I believe also in Van Diemen's Land.

Sp. 21. *Platynotus insularis*, Hope.

Niger, capite fere quadrato, thorace glabrato, postice angulato, marginibus elevatis. Elytra excavato-punctata, apicibus subacutiusculis. Corpus infra nigrum, tarsis piceis.

Long. lin. 7, lat. lin. 3.

I have received this insect from Melville Island, and have named it in my cabinet as *insularis;* a very minute specimen has reached me also from Port Essington.

Sp. 22. *Opatrum sphæroides*, Hope.

Nigrum, clypeo emarginato, antennis ultimis articulis increscentibus et piceis. Thorax punctulatus, elytris rugosis, subtuberculato-pilosis. Corpus infra nigrum, pedibus concoloribus, tarsis exceptis piceis.

Long. lin. 2¼, lat. lin. 1¾.

Sp. 23. *Isopteron opatroides*, Hope.

Fuscum, antennis rubro-piceis, thorace angulis anticis subacutis, posticis fere rectis. Elytra striato-punctata. Corpus infra atrum punctatum, femoribus et tibiis concoloribus, tarsisque piceis.

Long. lin. 4, lat. lin. 1¼.

Habitat in Western Australia.

Sp. 24. *Opatrum piceitarsis*, Hope.

Fuscum, capite anticè impresso, antennis piceis. Thorax fere quadratus, angulis anticis parum productis et acutis, posticis vix rectis. Elytra striato-punctata, thorace triplo longiora. Corpus infra fusco-griseum, femoribus et tibiis concoloribus, tarsisque piceis.

Long. lin. 3¾, lat. lin. 1.

Sp. 25. *Asida serricollis*, Hope.

Nigra, antennis tarsisque piceis, thorace valdè emarginato, lateribusque externè serratis. Elytra aliquot lineis minutis punctisque elevatis per totum discum aspersis. Corpus infra concolor, tarsis exceptis piceis.

Long. lin. 4½, lat. lin. 2.

Sp. 26. *Endophlæus Australis*, Hope.

Flavo-brunneus, antennis nigricantibus pilosis. Thorax angulis anticis parum productis, posticis rectè acutis, disco lineâ longitudinali maculâ utrinque nigricanti insignito. Elytra flavo brunneoque colore variegata. Corpus infra concolor, tarsis infra flavo-comatis.

Long. lin. 3½, lat. lin. 1½.

Sp. 27. *Endophlæus variicornis*, Hope.

Niger, antennis atris, articulis quibusdam flavis et pilosis, capite atro nitido. Thorax excavatus, anticè niger, posticè flavus, maculis duabus atro-pilosis ante scutellum positis. Scutellum flavum. Elytra sulcata, lineato-punctata, flavo brunneoque colore variegata. Corpus infra griseo-flavum.

Long. lin. 2½, lat. lin. 1.

I received the above from the vicinity of Adelaide.

Fam. DIAPERIDÆ.

Sp. 28. *Neomida tetraspilota*, Hope.

Atra, capite anticè rubro, thorace nigro et nitido. Elytra concolora, quatuor maculis rubris insignita, binæ ad humeros binæque aliæ ad apicem positæ. Corpus infra nigrum, pectore utrinque rufescenti, pedibusque rubris.

Long. lin. 1¾, lat. lin. ½.

Sp. 29. *Tetraphyllus sumptuosus*, Hope.

Violaceus, antennis concoloribus, thorace anticè posticèque cyaneo, lateribus auratis. Elytra striato-punctata, binis fasciis auratis insignita apicibusque concoloribus, medio disci lætè violaceo maculisque duabus cyaneis ante apicem positis. Corpus infra abdomine violaceo, pectore femoribusque auratis tibiisque cyaneis.

Long. lin. 2½, lat. lin. 1½.

Sp. 30. *Cnodulon longipennis*, Hope.

Affine *Cupreo*, Fab. Oblongum, thorace atro, elytris viridi-purpurascentibus, striato-punctatis, punctis minutis; corpore infra atro et nitido.

Long. lin. 7½, lat. lin. 3½.

Sp. 31. *Cnodulon cupripennis*, Hope.

Oblongum, thorace atro-æneo, subtilissimè punctulato, antennis nigris. Elytra cupreo-ænea, vix sub lente striato-punctata, punctis sparsim aspersis. Corpus infra nigrum.

Long. lin. 6½, lat. lin. 3¼.

Sp. 32. *Cnodulon cupricolle*, Hope.

Oblongum, thorace rosi-cupreo glabro, antennis atris. Elytra olivaceo-viridia lineato-punctata, punctis minutis. Corpus infra nigrum.

Long. lin. 5½, lat. lin. 2½.

The above insect inhabits Melville Island.

Sp. 33. *Cnodulon puncticolle*.

Oblongum, thorace atro punctulato, elytris cupreo-æneis sulcato-punctatis, sulcis fortiter punctatis, punctis inter strias minutis. Corpus infra nigrum et nitidum.

Long. lin. 6, lat. lin. 3.

Sp. 34. *Cnodulon sulcipennis*, Hope.

Oblongum, thorace atro glabro, elytrisque cupreo-æneis sulcato-punctatis, sulcis fortiter impressis, interstitiis striarum lævibus; corpore infra nigro et nitido.

Long. lin. 4½, lat. lin. 2.

Sp. 35. *Cnodulon picicorne.*

Oblongum, thorace atro antennisque piceis. Elytra cupreo-ænea, purpurascentia, striato-punctata. Corpus infra nigrum, femoribus concoloribus, tibiis tarsisque brunneo-piceis.
Long. lin. 4, lat. lin. 1¾.

Sp. 36. *Cnodulon cyanipennis,* Hope.

Oblongum, thorace trapezoidali nigro, anticè contracto, posticè dilatato. Elytra lætè cyanea, striato-punctata. Corpus infra nigrum, pedibus antennisque concoloribus, antennis quatuor ultimis articulis magnitudine increscentibus; tarsis infra flavo-comatis.
Long. lin. 6, lat. lin. 2.

This insect, from the shape of the thorax, ought to be separated from *Cnodulon.*

Sp. 37. *Cnodulon anthracinum,* Hope.

Atrum, præcedenti affini. Caput fere quadratum, antennis palpisque piceis. Thorax glaber, elytris striato-punctatis; corpore infra concolore et nitido.
Long. lin. 4, lat. lin. 1¾.

I possess about ten other specimens of *Cnodulon,* which are undescribed. It appears that there are two, if not three, subgenera included at present amongst the New Holland insects ranked as *Cnodulon.*

Fam. TENEBRIONIDÆ.

Sp. 38. *Tenebrio longipennis.*

Niger, thorace fere quadrato, angulis anticis rotundatis, posticis acutis et denticulatis; elytris striato-punctatis, nitidis, atris; corpore infra pedibusque concoloribus.
Long. lin. 8, lat. lin. 2.

Sp. 39. *Tenebrio convexiusculus,* Hope.

Niger, præcedenti affinis, at minor; thorace convexiori; elytris fortissime punctatis, punctisque majoribus valde impressis.
Long. lin. 6, lat. lin. 1½.

Sp. 40. *Tenebrio cyanipennis*, Hope.

Ater, antennis brunneo-piceis, thorace nigro-violaceo, fere glabro; elytris striato-punctatis et cyaneis. Corpus infra nigrum, femoribus et tibiis piceis, tarsisque infra flavo-comatis.
Long. lin. 5¾, lat. lin. 1½.

Fam. HELOPIDÆ.

Sp. 41. *Helops latipennis*, Hope.

Nigro-chalybeus, thorace fere quadrato, depresso et punctato; antennis atris, quatuor ultimis articulis piceis. Elytra thorace latiora, posticè parum dilatata, subtilissimè punctata et viridi-chalybea. Corpus infra nigrum, nitidum; femoribus, tibiis, palpisque piceis, tarsisque infra flavo-comatis.
Long. lin. 10, lat. lin. 4.

Sp. 42. *Allecula pimeloides*, Hope.

Nigra, antennis piceo-tomentosis, thorace convexo, angulis anticis rotundatis. Elytra thorace triplo longiora, subacuminata, striato-punctata, striis haud fortiter impressis. Corpus infra nigrum, ultimo segmento abdominis in medio flavo-maculato.
Long. lin. 8, lat. lin. 2½.

Sp. 43. *Allecula omophiloides*, Hope.

Nigra, thorace depresso convexo, angulis posticis subacutis, lateribus medio dilatatis. Elytra striato-punctata, posticè valde dilatata. Corpus infra nigrum punctatum, tarsisque infra flavo-comatis.
Long. lin. 6, lat. lin. 2.

Sp. 44. *Allecula melancholicha*, Hope.

Nigra, thorace fere rotundato, punctulato, elytrisque striato-punctatis, posticè gradatim dilatatis. Corpus infra nigrum.
Long. lin. 5¾, lat. lin. 1½.

Sp. 45. *Allecula canescens*, Hope.

Fusco-grisea, thorace albido-tomentoso; elytris striato-punctatis, fusco-cinerascentibus seu albidis capillis obsitis. Corpus infra concolor.
Long. lin. 6, lat. lin. 2.

Sp. 46. *Allecula foveicollis*, Hope.

Picea, thorace glabro, foveâ impressâ rotundâ utrinque impressâ. Elytra striato-punctata picea, punctis fortiter insculptis. Corpus infra concolor, pedibus pallidioribus.

Long. lin. 5, lat. lin. 1¼.

Sp. 47. *Allecula Gouldii.*

Affinis precedenti, at minor. Picea, thorace glabro convexo, elytris parum pallidioribus, striato-punctatis, punctis leviter impressis. Corpus infra rubro-piceum.

Named in honour of Mr. Gould the Ornithologist.

Sp. 48. *Allecula nigricans*, Hope.

Atro-picea, thorace punctulato, elytris striato-punctatis, interstitiis striarum sparsim punctatis. Corpus infra piceum, pedibus concoloribus.

Long. lin. 4½, lat. lin. 1.

This species was sent to me with the preceding, by Mr. Gould from Port Essington.

Fam. DYNASTIDÆ.

Corynophyllus, Hope, n. g.

Corpus breve, crassum, convexum. *Caput* mediocre, vertice bituberculato, clypeo porrecto, apice emarginato. *Labrum* clypeo obtectum. *Mandibulæ* inermes, extus rotundatæ, clypeo haud obtectæ. *Maxillæ* elongatæ, lobo apicali brevissimo, longè ciliato. *Palpi* maxillares breviusculi crassi. *Mentum* elongato-conicum, apice rotundato, valde setosum. *Labium* haud visibile. *Palpi* labiales minuti, 3-articulati. *Antennæ* 10-articulatæ, articulis 4 et 5 minutis; tribus ultimis maximis flabellum curvatum efficientibus. *Prosternum* gracile, parvum, truncatum. *Tibiæ* 2 anticæ 3-dentatæ, 4 posticæ in medio spinosæ. *Tarsi* graciles.

Sp. 49. *Corynophyllus Fortnumi*, Hope. (Pl. VI. fig. 4.)

Niger, nitidus, fulvo-setosus, punctatissimus, antennis brunneo-fulvis, elytrisque castaneis, capitis vertice tuberculis duobus parvis, prothorace anticè retuso et longitudinaliter impresso, elytris rudè punctato-striatis.

Long. corp. lin. 7.

Fam. GEOTRUPIDÆ?

PHÆNOGNATHA, Hope.

Genus novum *Pachypo* affine, pedibus posticis longissimis. *Caput* in medio cornutum. *Labrum* porrectum, conicum. *Mandibulæ* exsertæ. *Antennæ* 9-articulatæ. *Maxillæ* lobis minutissimis. *Prothorax* anticè subretusus. *Elytra* conica, posticè valde attenuata. *Tarsi* gracillimi.

Sp 50. *Phænognatha Erichsonii*, Hope.

Castaneo-fulva, capite unicorni, cornu nigro, posticè flavo tomentoso; thorace punctato, margine omni ciliato; elytris nigris, ad basin castaneis, striato-punctatis, punctis quasi erosis, corpore infra piloso; pedibus concoloribus et auro-setosis.

Long. corp. lin. 7 (nec 3), lat. lin. 2½.

From Port Essington. Named in honour of Professor Erichson, who has figured some singular genera allied to *Pachypus* as well as to the above genus.

DESCRIPTION OF THE FIGURES.

Plate VI. fig. 4. *Corynophyllus Fortnumi.*

4 *a*, front of head; 4 *b*, ditto, with antenna from beneath; * labrum; † mandible; 4 *c*, maxilla; 4 *d*, mentum and labial palpi; 4 *e*, prosternum.

Plate VI. fig. 5. *Phænognatha Erichsonii.*

5 *a*, mandible; 5 *b*, maxilla; 5 *c*, mentum, labium, and labial palpi; 5 *d*, antenna.

Plate VII. fig. 1. *Articerus Fortnumi.*

1 *a*, head and basal joint of antenna; 1 *b*, elytron; 1 *c*, wing; 1 *d*, fore leg, male; 1 *e*, ditto, female; 1 *f*, middle leg, male; 1 *g*, ditto, female; 1 *h*, hind leg, male; 1 *i*, ditto, female; 1 *k*, abdomen from above; 1 *l*, ditto, from beneath; 1 *m*, head and basal joint of antenna, from a single specimen from the head of Gulf St. Vincent.

XXII. *Descriptions of some Coprophagous Lamellicorn Beetles from New Holland. By* J. O. WESTWOOD, F.L.S.

[Read 1st November, 1841.]

THE insects described below belong to that division of the family of the sacred beetles, (*Scarabæidæ*, MacLeay, *Ateuchites*, auct. al.,) which is distinguished by having the head and thorax destitute of horns; the scutellum obsolete; the intermediate tibiæ with two spurs, and they, as well as the posterior tibiæ, not dilated into an elongated triangle at the tip, as in the *Coprides*.

It is a remarkable peculiarity in Entomo-geography, that whilst the arid deserts of Africa produce great numbers of coprophagous *Scarabæidæ* of large size, New Holland is almost entirely destitute of these insects; and of these, the largest appears to be the

Circellium hæmisphericum, Péron, (Pl. VIII. fig. 3,)

figured by Guérin in the "Iconographie du Règne Animal, Insectes," pl. 21, fig. 3, (and described in the texte, p. 76,) as 7½ lines (15 millem.) long. This insect has been formed by Reiche into the genus COPROECUS, in the "Revue Zoologique, par la Société Cuvierriene" for July in the present year (1841, p. 211).

M. Reiche, in his memoir on this group of insects, published since the above was written, states that in the specimen belonging to the Jardin des Plantes the antennæ and part of the trophi are wanting. His figure of the insect is much more elongate-oval than that of M. Guérin; it is, however, evidently not broad enough, according to the dimensions given by M. Reiche. This author has detected short but distinct tarsi in the fore feet, and a single spur at the extremity of the middle tibiæ. He has, however, represented the posterior tibiæ as terminating on the inside in an acute spine as long as the calcar; whereas M. Guérin figures it as truncated, obliquely emitting the calcar near the middle of the truncation: and he describes the elytra as very convex, with six elevated smooth costæ, each of which is accompanied on each side by a row of small punctures, in which respect it approaches *Tessarodon*, from which, however, it is separated by its possessing only one spur to the middle tibiæ.

Another species, remarkably distinct in having the hind angles of the thorax acute and prolonged backwards, and being 3¼ lines long, has been mistaken for the *Ateuchus Hollandiæ* of Fabricius, by Dejean, (who has formed it into the genus AULACIUM, adopted by Reiche in the work above referred to,) whilst De Laporte formed it (with the same erroneous specific name) into his slightly characterized genus *Mentophilus* (Hist. Nat. An. art. Col. vol. ii. p. 74, pl. 4, fig. 4). Reiche has, however, proposed for it the specific name of *A. carinatum.* (Pl. VIII. fig. 4, and details.)

The real *Ateuchus Hollandiæ*, the original specimen of which, described by Fabricius from the Banksian Cabinet, I detected amongst the unarranged insects of that collection in the possession of the Linnæan Society, although still authenticated by the original label, has been formed by Mr. Hope into the genus *Tessarodon*, in his "Coleopterist's Manual," vol. i. p. 55; the insect itself being figured in his plate 3, fig. 15. More recently Mr. Hope has obtained two other species of the same genus from Australia, which have enabled me to give the following generic details; but as these insects absolutely disagree with the character expressed by the name *Tessarodon*, (having only two teeth in the front of the clypeus,) another name ought to be given to the genus.

TESSARODON, Hope, Reiche.

Corpus obovatum, subconvexum. *Caput* anticè in dentibus duobus triangularibus brevibus productum; angulis posticis posticè haud porrectis. *Mentum* subquadratum, anticè parum emarginatum. *Palpi* labiales breves, articulis duobus basalibus subæqualibus longe setosis, tertio (apicali) minimo. *Prothorax* rudè punctatus, lateribus in medio angulatis vel subangulatis, utrinque versus marginem profundè impressus. *Elytra* ovato-rotundata, tenuissimè striata, striis per paria ordinatis, singulo pari utrinque lineá punctorum impressorum notato. *Pedes* longi. *Tibiæ* anticæ calcari brevi obliquè truncato instructæ; *tibiæ* intermediæ curvatæ depressæ, pone medium subdilatatæ, angulo apicali externo obliquè truncato, bicalcaratæ; *tibiæ* posticæ minus curvatæ, apice interno recurvo unicalcaratæ. *Tarsi* antici brevissimi, articulo ultimo longo; *tarsi* 4 postici longiores, articulo 2ndo præcedenti parum majori; unguibus parvis, valde curvatis.

Sp. 1. *Tessarodon Hollandiæ.*

T. subrotundatus, totus ater, clypeo quadridentato, prothorace punctis oblongo-ovalibus impresso, elytris sulcatis, striis per paria impressis.

Long. corp. lin. $2\frac{2}{3}$.
Habitat in Nova Hollandia.
In Mus. Soc. Linn. Lond., olim Banks.

Syn. *Scarabæus Hollandiæ*, Oliv. Ins. l. 3, 174, t. 13, fig. 119; Fabricius, Ent. Syst. 1, p. 65.
Ateuchus Hollandiæ, Fabricius, Syst. El. 1, p. 57.
Tessarodon Novæ Hollandiæ, Hope, Col. Man. 1, p. 55, pl. 3, fig. 15; nec *Aulacium Hollandiæ*, Dejean, vel *Mentophilius Hollandiæ*, Lap.

This species is smaller and (in proportion to its size) broader than either of the two following; the sides of the head are produced on each side of the two middle horns into an advanced conical lobe; the club of the antennæ is pale yellow; the fore tibiæ are not so broad as in the next species, and the teeth on the outside are obtuse; the hind tibiæ appendiculated at the tip on the inside.

The above description, and the figure published in Mr. Hope's Coleopterist's Manual, were taken from the original specimen still preserved at the Linnæan Society.

Sp. 2. *Tessarodon angulatus*, Westw. (Pl. VIII. fig. 2.)

T. subovalis, obscurè castaneus, capite et prothorace rudè punctatis, clypeo in medio dentibus duobus conicis, lateribus ante oculos valde angulatis, tibiis posticis ad apicem appendiculatis.

Long. corp. lin. 3.
Habitat in Nova Hollandia apud Swan River?
In Mus. D. Hope.

This species is longer but not so broad as the typical species: it is entirely of a dark castaneous colour; the head with two conical flat spines in the middle, on each side of which the margin is rounded for a short distance, it then runs nearly straight to a very sharp angle in front of the eyes; the club of the antennæ is pale fulvous; the head and thorax are very strongly and irregularly punctate, and the elytra are rather deeply striated in double rows, with punctures on each side; the anterior tibiæ are furnished with a short spur dilated and truncated at the tip; the hind tibiæ are appendiculated on the inside at the tip.

Sp. 3. *Tessarodon piceus*, Hope.

T. parvus, subovalis, castaneus; capite et prothorace rudè punctatis, capitis angulis ante oculos rotundatis, tibiis posticis simplicibus.

Long. corp. lin. 2½.
Habitat Port Essington, New Holland.
In Mus. D. Hope.

This species is very closely allied to *T. angulatus*, with which it agrees in general form, colour, and sculpture. It is, however, at once distinguished by the rounded lateral angles of the head (in front of the eyes), the simple hind tibiæ, and its small size.

CEPHALODESMIUS, Westw.

Corpus oblongo-quadratum, posticè rotundatum. *Caput* planum, clypeo in medio 4-dentato, dentibus elevatis, intermediis duobus valde elongatis divergentibus, apice obtusis; externis duobus minoribus conicis convergentibus acutis. *Mentum* subquadratum, lateribus parum rotundatis, margine antico subemarginato. *Palpi* labiales articulo 2do tumido ovato, tertio minuto tenui-ovali. *Prothorax* magnus transversus, valde convexus, lateribus in medio subparallelis, angulis anticis et posticis obliquè truncatis, dorso valde convexo, medio longitudinaliter subsulcato. *Elytra* subcordata convexa opaca, parum sulcata. *Pedes* longi graciles; *tibiæ* anticæ calcari acuto armatæ; *tibiæ* 4 posticæ rectæ graciles, apice parum latiores, intermediæ 2-, posticæ 1-calcaratæ. *Tarsi* simplices, antici minuti; *ungues* minuti, valde curvati.

This genus is at once distinguished by the peculiar form of the prothorax, the very porrected horns of the front of the clypeus, the elongated slender straight hind tibiæ, and the form of the labial palpi. I am only acquainted with a single species.

Cephalodesmius armiger, Westw. (Pl. VIII. fig. 5.)

Totus niger, capite nitido punctato, pronoto subopaco, tenuissimè punctato; elytris opacis subsulcatis, intra margines laterales acutè carinatis.

Long. corp. lin. 5 (cum corn. clyp.).
Habitat in Nova Hollandia.
In Mus. Brit.: Soc. Ent. London; Hope and Melly.

TEMNOPLECTRON, Westw.

Corpus breve, valde convexum, subrotundatum, nitidum. *Caput* latum, clypeo anticè in lobos duos minutos obtusos producto. *Mentum* cordato-truncatum. *Palpi* labiales articulo 2do obconico, 3tio præcedenti dimidio breviori tenui-ovali. *Prothorax* lateribus rotundatis, et cum elytris subcontinuis, dorso glabro, sed sub lente tenuissimè punctulato: elytris valde

convexis ovatis, tenuissimè striatis. *Pedes* antici breves; calcari parvo obliquè truncato. *Tibiæ* posticæ subcurvatæ depressæ. *Tarsi* breves, unguibus subtus denticulo instructis.

This genus is distinguished by the broad round outline of the convex body, the truncation of the spur of the anterior tibiæ, the armature of the ungues and the curved hind tibiæ.

Temnoplectron rotundum. (Pl. VIII. fig. 1.)

T. nigrum, nitidum; tibiis anticis obtusè tridentatis, singulo elytro striis 8 tenuissimis, striâ suturali punctatâ.
Long. corp. lin. 5.
Habitat Melville Island.
In Mus. Dom. Hope.
Syn. *Ateuchus rotundus*, Hope, MSS.

The above, together with *Copris 4-pustulatus* and *Ateuchus bipustulatus* of Fabricius, constitute the whole of the Australian *Scarabæidæ* with elongated legs; and it is remarkable that all these possess anterior tarsi, whereas in their immediate allies from other parts of the globe the fore feet are destitute of tarsi.

DESCRIPTION OF PLATE VIII.

Fig. 1. *Temnoplectron rotundum*; 1 *a*, front of head; 1 *b*, labial palpus; 1 *c*, mentum, &c.; 1 *d*, fore tibia and tarsus; 1 *e*, middle ditto.

Fig. 2. *Tessarodon angulatus*; 2 *a*, head; 2 *b*, mentum, &c.; 2 *c*, labial palpus; 2 *d*, striæ of elytra; 2 *e*, fore tibia and tarsus; 2 *f*, middle ditto; 2 *g*, hind ditto.

Fig. 3. *Coproecus hæmisphericus*; 3 *a*, hind foot.

Fig. 4. *Aulacium carinatum*; 4 *a*, maxilla; 4 *b*, mentum, &c.; 4 *c*, striæ of elytra; 4 *d*, anterior foot.

Fig. 5. *Cephalodesmius armiger*; 5 *a*, labrum highly magnified; 5 *b*, mandible; 5 *c*, maxilla; 5 *d*, mentum, &c.; 5 *e*, labial palpus; 5 *f*, anterior foot.

XXIII. *Descriptions of some Species of exotic Heteropterous Hemiptera.* *By* J. O. Westwood, F.L.S.

[Read 1 August, 1842.]

I beg leave to submit to the notice of the members of the Entomological Society figures and descriptions of several Heteropterous insects, belonging to the family *Reduviidæ.* Two of these belong to well known groups, and as such I should have hesitated in drawing up their isolated descriptions, did not their large size and fine colours render them especially worthy of attention. They are, in fact, considerably larger than any species of the family yet described. The third species differs in its structural characters so materially from the other groups in the family, that I have not hesitated in adding another to the already numerous genera of *Reduviidæ.*

Sp. 1. *Ectrichodia imperialis,* Westw. (Pl. VII. fig. 2.)

Purpurea; antennis et hemelytris nigris, abdominis lateribus fulvo-fasciatis. (Fig. 2 *a,* lateral view of the head.)

Long. corp. unc. $1\frac{3}{4}$.

Inhabits Cape Palmas on the west coast of tropical Africa. Collected by the Rev. Mr. Savage, and sent to the Rev. F. W. Hope: also in the British Museum from Sierra Leone.

Purpurea vel purpureo-nigra, parte postica pronoti æneo-tincta; capite parvo, inter oculos impressionibus duabus longitudinalibus; antennis nigris 6-articulatis (radicula basali haud inclusa), articulo 2ndo 1mo duplo longiori setoso, 3tio 1mo parum longiori, tribus ultimis gracillimis et sensim longitudine decrescentibus. Pronotum transversè et longitudinaliter impressum. Scutellum tuberculis duobus apicalibus, discoque impresso. Hemelytra nigra, cyaneo parum tincta. Pedes concolores, tibiis ad apicem spongiola fulva instructis. Abdomen subtus purpureum, maculis lateralibus conoideis fulvis.

I have applied the name of *imperialis* to this species, not only on account of its large size, but from its rich purple colour, varied at the sides of the abdomen with golden yellow.

Sp. 2. *Platymeris ducalis*, Westw. (Pl. VII. fig. 3.)

Nigra, nitida, spinosa; hemelytris fasciâ latâ rufâ abbreviatâ ante medium; abdominis segmentis femoribusque late rufo-fasciatis. (Fig. 3 *a*, lateral view of the head.)

Long. corp. unc. $1\frac{5}{6}$.

Inhabits Cape Palmas, tropical Western Africa. Rev. J. Savage. In the collection of the Rev. F. W. Hope; also in the British Museum, from Sierra Leone.

Caput parvum, nigrum, inerme. Antennæ gracillimæ, articulis 4; articulationibus intermediis haud computatis. Prothorax bipartitus, parte antica 12-spinosa, spinis 4 dorsalibus majoribus; parte postica etiam spinis 4 acutis. Scutellum spinis tribus magnis, acutis et erectis. Hemelytra nigra, fasciâ latâ rufâ (in medio interruptâ) ad apicem partis coriacei, hâc etiam spinulis numerosis armatis. Abdomen segmentis basi late rufo-fasciatis, apicibus segmentorum spinulis instructis. Femora incrassata, fasciâ latâ rufâ ante apicem.

Ectinoderus, Westw. (Proceed. Ent. Soc. p. 74.)

Caput parvum, rotundatum, naso conico inter antennas haud instructum, collo elongato. *Antennæ* 4-articulatæ, articulationibus inter articulos haud computatis; articulo 1mo longo, haud apicem versus incrassato, tribus ultimis sensim brevioribus et tenuioribus (inter articulos 1 et 2 et 2 et 3 articuli rudimentales adsunt). *Prothorax* maximus, anticè supra basin pedum anticorum dilatatum; in medio transversè impressum posticèque in lobos duos supra basin hemelytrorum (apice scutelli tantum detecta) protensum. *Abdomen* subrotundatum depressum, lateribus hemelytris haud obtectis. *Hemelytra* areolis tribus discoidalibus, intermedia majori. *Pedes* (præsertim antici) valde elongati. *Tibiæ* anticæ setosæ.

Syn. *Pristhevarma*, Serv. and Am. Hist. Nat. Hem. p. 355.

A few species of *Reduviidæ* have already been described, in which the pronotum is dilated and extended backwards over the scutellum. Such is the case in the genus *Arilus* (*Reduvius serratus*, &c.), also in the *Reduvius tuberculatus* of the animal kingdom, arranged by Burmeister in the same genus. The genera *Notocyrtus*, Hoffmans. (*Saccoderes*, Spinola), including the *Reduvius dorsalis*, Gray, and the African genus which I have named *Dias-*

pidius, in the new edition of Drury's "Illustrations of Exotic Entomology," likewise exhibit this peculiarity, but the insect before us exhibits the same character in a curious degree of development, its sides behind being dilated into two thin plates extending over the base of the hemelytra, whilst there is a slight excision in the centre exposing the tip of the scutellum; the front of the prothorax is also curiously dilated into a pair of arched lobes over the base of the fore legs, which are singularly elongated. It is true that in many *Reduvii* the fore femora are greatly dilated, but here it is by an extension of the limb that the extra development is attained. From *Diaspidius* the present genus differs in its broad form, the different proportions of the joints of the antennæ, and the straight tibiæ. I regret that I am unacquainted with the locality of this curious insect, which is however, I believe, Singapore. The *Reduvius coccineus* of Perty seems, in some respects, to be allied to the present group.

Sp. 3. *Ectinoderus longimanus*, Westw. (Pl. VII. fig. 4.)

Obscurè luteus; capite, antennis et hemelytrorum membrana nigris; femoribus fasciâ mediâ apiceque tibiisque anticis (nisi ad basin) nigricantibus, hemelytrorum corio et abdominis lateribus luteo nigroque variis.

Long. corp. unc. $1\frac{1}{3}$.
Habitat Singapore?
In Mus. Westwood.

Sp. 4. *Ectinoderus Philippinensis*, Westw.

Nigricans; corpore subtus, basi pedum, et maculis duabus hemelytrorum luteis; pronoto posticè integro (haud in medio emarginato ut in præcedente).

Long. corp. unc. $1\frac{1}{12}$.
Habitat ad insulas Philippinenses, D. Cuming.
In Mus. Westwood.

Sp. 5. *Ectinoderus bipunctatus.*

Syn. *Pristhevarma bipunctata*, Serv. and Am. Hist. Nat. Hemipt. p. 355.

HOLOPTILUS, Serv. and St. Farg.
(Vide Trans. Ent. Soc. vol. ii. p. 248, Pl. XXII.)
Subgenus novum, ORTHOCNEMIS, Westw.

Antennæ ut videntur 3-articulatæ, articulo 2do elongato curvato (breviori quam in *H. urso*), longissimè setoso, setis triplici

serie ordinatis; articulo 3tio minuto ovali, in apicem precedentis subobliquè inserto. Caput supra posticè densè lanatum. Hemelytrorum membrana distinctè venosa, basi densè lanata. Pedes breviores quam in reliquis hujus generis; tibiis rectis, gracilibus, setosis. Alæ posticæ tenuissimæ, dimidio abdominis longitudine paullo superantes. Abdomen lateribus longè setosis.

Sp. 6. *Holoptilus* (*Orth.*) *basalis*, Westw. (Pl. VII. fig. 5.)

Obscurè rufescens; capite, antennis, pedibusque magis fulvescentibus; capite posticè et hemelytris ad basin densè et longè griseo-lanatis; his ad basin albis, plagâ maximâ mediâ nigrâ, apicibusque griseis, punctum nigrum includentibus.

Long. corp. lin. 2½.
Habitat in Nova Hollandia, Adelaide. D. Fortnum.
In Mus. D. Hope.

This interesting insect seems to connect the two subgenera in this genus, described in my monograph upon the group in the second volume of the "Transactions of the Entomological Society of London," possessing the apparently 3-articulate antennæ and simply setose tibiæ of *Holoptilus*, and the maculated and venose hemelytra of *Ptilocnemis*. The hind feet are much shorter and less densely setose even than in *H. ursus*, but the crown of the head and the base of the hemelytra are very thickly lanose or setose.

XXIV. *Memoirs on various Species of Hymenopterous Insects.* *By* J. O. Westwood, F.L.S., &c.

[Read 4th February and 3rd June, 1839.]

I. *On the Economy and Relations of the Genus Xiphydria.*

[The various situations in which the genus *Xiphydria* was arranged in the classifications of Latreille, Jurine and Leach, together with its intimate relation with the genus *Sirex*, Linn., and consequent importance in the distribution of the *Hymenoptera* given by Mr. MacLeay in the "Horæ Entomologicæ," (in which the *Tenthredinidæ* are removed from the rest and united with the *Trichoptera*, and *Sirex* is made an osculant suborder under the name of *Bomboptera*,) induced me, about twenty years ago, minutely to examine the structure of the ovipositor and sting of the chief groups of the Linnæan *Hymenoptera*, as well as the preparatory stages of such species as presented themselves. And although the general results of these inquiries have been given to the Entomologist in my "Introduction to the Modern Classification of Insects," a considerable number of details and sketches still remain unpublished. The discovery by Mr. Cooper of the preparatory stages of the genus *Xiphydria* afforded a very important clue to the solution of the question of the relations of that genus, and I accordingly drew up an extended memoir, (noticed in the Zoological Journal for 1827,) in which the entire structure of the genus, in its perfect and preparatory states, was reviewed with reference to that of the adjacent groups, and in which the position of the genus was traced, through the writings of preceding authors, and the formation of the ovipositor throughout the *Hymenoptera* especially examined; the propriety of the general arrangements of the order investigated; the situation of the present genus therein discussed, and a plan of distribution of the order proposed. During the last eighteen years, however, the philosophical investigation of the order has made such rapid strides that much of what I had written is now rendered useless; I have therefore struck it out of my memoir, which is here confined to the details of the structure of the insect in its different states, and a comparison thereof with the allied genera.—*J. O. W.* 1845.]

By the kindness of my friend, Abraham Cooper, Esq., R.A., I am enabled to present my readers with a description of the larva of a species of the Hymenopterous genus *Xiphydria*, which will, I think, enable us satisfactorily to determine the family to which the perfect insect is referable.

In the month of November, 1826, this gentleman discovered near Hornsey, Middlesex, several of these larvæ alive and buried in the solid part of a branch of willow, which was perforated and devoured in different directions in a manner similar to the operations of the goat moth (*Cossus ligniperda*). Pl. X. fig. 1, represents the larva in one of the burrows. It would appear that Linnæus was aware that the larvæ of his *Sirex Camelus* (which is also a species of the genus *Xiphydria*) feed upon wood ;* although De Geer, (Hist. d. Ins. vol. i. p. 567,) being ignorant of the economy of *Urocerus gigas*, placed that insect, together with *U. juvencus* and *spectrum*, with the *Ichneumonidæ*, and supposed its larvæ had similar habits to those of that family ;† as did also Geoffroy, who established the genus *Urocerus* several years before Linnæus published the twelfth edition of the "Systema Naturæ," wherein he called the same insects by the generic name of *Sirex*, which latter name must consequently be rejected.

Modern Entomologists however do not appear to be acquainted with the economy of the insect under description, for M. Le Pelletier de Saint Fargeau, in his Monograph on the *Tenthredinidæ*, tells us (Preface, p. 13) that he is neither acquainted himself with the larvæ of this genus nor of *Xyela* of Dalman, nor does he believe that they were at all known. Dr. Leach formed this genus and *Cephus* into his family *Xiphydriadæ*, and amongst its characters we find the following: "Larvæ with scaly feet, or at least not membranaceous."‡ This description I shall however prove will not at all apply to the larva of *Xiphydria*. Latreille, in his "Genera Crustaceorum, &c.," makes no mention of the larvæ of these two genera; but in the "Règne Animal"§ he forms of them a primary division of the *Tenthredinidæ*, and says, "Les larves vivent probablement dans l'intérieur des vegetaux ou dans les vieux bois ;" and in a late work he observes, without any expression of doubt, "Larves sans pattes membraneuses vivent dans l'intérieur des vegetaux."|| Dr. Klug, in his Monograph on the German *Siricidæ*, in which the present group is included

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* "Habitat in ligno antiquo corrupto."—Faun. Suec. No. 1576.

† "Je ne connois point leurs vers, ni le lieu où ils vivent, mais la longue tarrière de la femelle fait assez connoitre qu'ils doivent être obligés de pondre leurs œufs dans d'autres corps, à la manière des Ichneumons."

‡ Samouelle's Compend. p. 267.

§ Règne Animal, vol. iii. p. 459.

|| Familles Naturelles, p. 442.

under the generic name of *Hybonotus*, merely observes—" Metamorphosis ex parte nota; constat nempe larvam Siricum morem observare et Xylophagam esse—Noxa certe nulla, præsertim cum in arboribus, nonnisi putredine jam corruptis larvæ inhabitent"—without adding any description of the larva itself.*

The larva is a soft, cylindrical, white and fleshy grub, with a small head and twelve segments to the body. When at rest the head of the insect is nearly obscured by the first three segments of the body, which are larger than the others. (Pl. X. fig. 2, represents the larva at rest.) The head is placed much lower than usual, (thus resembling, as Mr. Cooper remarked, the position of the head of the perfect insect,) and is of a harder substance than the remainder of the body, and is furnished with a small upper lip rounded in front (labrum, Pl. X. fig. 9 *b*); a pair of strong short upper jaws or mandibles, (fig. 9 *cc*, and fig. 11,) each having three or four teeth; a pair of under jaws or maxillæ, which offer a rather remarkable peculiarity of structure, being composed of two parts, the inner (fig. 12 and 13 *bb*) fleshy and rather hairy at the interior margin, and the outer portion (fig. 12, 13 *aa*) not longer than the inner, but having the rudiments of several joints; there is also a large fleshy under lip (labium, fig. 9 and 12 *e*), which does not appear to possess any appendage: the under jaws and the under lip are united at their base, and have one common motion. The rudiments of the antennæ (fig. 9 *a*, and fig. 10) are placed a little above the base of the mandibles and are very short, and formed of several small rings gradually lessening in size to the tip. I have not been able to discover any vestige of the eyes of the perfect insect.

The first three joints of the body are, as I have before said, much larger and broader than the head or any other of the joints (except the last). They appear very much wrinkled on their upper side when the insect is at rest (see fig. 2), but when in motion these wrinkles become inflated and form a smooth surface (see fig. 3). The under side of each of these three joints is furnished with a pair of very minute fleshy legs (fig. 4 and 5), of which, when in motion, the insect makes but little use, generally laying upon its side bent, as at fig. 2. Its motion is performed by stretching out the first three joints and then drawing the remainder of the body after them, similar to the motion of a worm. The next eight segments of the body are very nearly equal in size, and are without any vestige of feet, each being furnished with a pair of lateral raised fleshy tubercles of the same length as the joint itself, which have somewhat the appearance of a row of white coral beads in miniature along each side of the body of the insect (see fig. 2 and 3). The last joint is larger than any of the eight preceding and is singularly formed, being flattened above with several impressed lines upon its surface and rounded underneath. It is also furnished at the apex with a short spine, composed of several pieces of various lengths soldered together (fig. 8 *bbb*) and arising from the centre of a coronet of very minute spines (fig. 8 *aa*). Of the duration of the insect in the larva state I can give no account.

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* Monogr. Siric. Germ. p. 14.

The economy therefore of this insect is not very dissimilar to that of *Urocerus*, the larvæ of which resides in burrows in the solid wood of the fir; Mr. Marsham, in the tenth volume of the "Linnæan Transactions," relating a lively anecdote of the alarm of a nurse and some children at the appearance of several specimens of *Urocerus gigas*, which came out of the deal floor of a newly boarded room.

But it is not in economy alone that this similarity is perceivable, for if we examine the figure of the larva of *Urocerus*, given in the eighteenth plate of the "Introduction to Entomology," or its description as given by Klug in his admirable Monograph on the genus *Urocerus*, we shall not be able to find any material difference. He describes it as being "Mollis, cylindrica; segmentis tredecim æqualibus, ultimo excepto majori rotundato, pluries plicato spina parva terminali parva instructa; capite subgloboso, parvo, mandibulis exigius armato; pedibus sex segmentis tribus prioribus infixis. Pupa folliculata, quiescens, imagini simillima alarum tantum rudimentis. Victus larvæ ex arborum ligno."*

With regard to the larvæ of other *Hymenoptera* the nearest approach to that of *Xiphydria* is made by the Tenthredinideous genus *Lyda*, the larva of which entirely loses the prolegs (although so peculiar a character of that family, but which nevertheless vary in number in the different genera). There is also another character which the larva of the *Uroceridæ* possess in common with those of the *Tenthredinidæ*, namely, that of having the rudiments of all the parts of the mouth of a mandibulated insect perfectly distinct, a character which no other Hymenopterous larvæ possess in so great a state of development. Nevertheless, as I have above stated, in the motion of the larvæ of *Xiphydria*, a considerable agreement is

* Monogr. Siric. German, p. 25.

perceived with the motions of the true Hymenopterous larvæ, which are more properly called vermiform. Looking, therefore, at the *Hymenoptera*, with reference only to the larvæ, we should say that they are primarily divisible into two great groups; the first comprising the *Tenthredinidæ* and *Uroceridæ*, and the second all the other *Hymenoptera*, the passage being formed by the *Uroceridæ*. But let us not forget that the state of the larva is only preparatory to that future state of which Mr. MacLeay has himself remarked, that "the true criterion of animal, as well as vegetable perfection, is the ability to continue the species;"* and Messrs. Kirby and Spence give it as their opinion, that a striking agreement in the perfect state, which is the acme of their nature, affords a much more satisfactory reason for keeping two tribes together, than any difference observable in their larvæ or metamorphosis for separating them.†

The pupa of this interesting insect decidedly belongs to the complete class of *Metamorphosis* in which the pupa is incomplete, being covered with a thin membraneous skin inclosing in separate and distinct sheaths the different organs of motion. Mr. Cooper found, on splitting a piece of the branch, several specimens in different stages of their pupa state (all, however, were dead): some being of a light brown colour and shrivelled up as though they had died immediately on assuming this state, (Pl. X. fig. 15,) and without having their future parts so distinctly perceivable; others in an intermediate state; and some nearly ready to assume their last state, and in which all the parts of the future insect had acquired their natural colour and consistency, being only covered with the thin and now transparent skin of the pupa (Pl. X. fig. 14). There were also several which had even become perfect insects found in the channels made by the larvæ, but which were also dead. I am not at all able to account for this circumstance, the larvæ being at the same time alive and healthy; for we cannot suppose that nature would thus suffer any of her creatures intentionally to perish without having attained their perfect state, and performed the very purposes of their existence. How long the pupa state continues I know not, nor at what period of the year the perfect insect is developed, although they have been taken in the month of June.

The pupa state is therefore exactly similar to that of all other *Hymenoptera*, and furnishes another proof that these insects ought not to be established into a distinct order as Mr. MacLeay proposes in his "Horæ Entomologicæ."

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* Horæ Entomologicæ, 446.

† Introduction to Entomology, vol. iv. p. 374.

The *Tenthredinidæ*, *Ichneumonidæ*, and also the genus *Urocerus*, form cocoons in which to pass the pupa state; but Mr. Cooper tells me he did not perceive any thing like a cocoon in which his pupæ had been inclosed.

In examining the structure of the perfect insect,* I shall not enter into a detail of the structure of their trophi, (although those of *Xiphydria* differ both from the *Tenthredinidæ* and *Urocerus*,†) as I consider that variations in the general external organization of an insect (being clearly indicative of variations in its economy and habits) are of greater consequence than variations in the structure of its mouth, the latter being in my opinion entirely dependent upon the former. Moreover, we know that not only do the genera which Latreille has included in the *Uroceridæ* differ very much in the formation of their trophi, (which that author has proved to be of a very anomalous character,) but that there is even very great difference in these organs in the species of *Urocerus* themselves.

The antennæ of the female of *X. dromedarius* have fifteen simple joints,‡ thus differing from the greater portion of the *Tenthredinidæ* and agreeing with those of *Urocerus*, which vary in number from thirteen to twenty-four,§ while *Oryssus* has only eleven. They also agree with *Urocerus* in the formation of the basal joints, and with *Oryssus* in having them much shorter than in *Urocerus*. In *Cephus* and *Lyda* there are nearly thirty joints.‖

In the shape and insertion of the head *Xiphydria* also agrees with *Urocerus;* and if we examine the trunk or thorax of both genera we shall find little (if any) difference, the extraordinary elongation in *Xiphydria* of the manitrunk (which may here with propriety be called the neck) only excepted: but even in *Urocerus* this part is distinct (as in fact it is in all the *Hymenoptera*), and the fore feet are always attached to it.¶ Jurine (who has confused the subject a little by giving to *Xiphydria* the generic name of *Urocerus*, while to the insects which are alone entitled to that name he has given the synonymous name of *Sirex*[*]) tells us that it is in consequence of the motion of which this neck is susceptible that two of the species have been named after the dromedary and camel.

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* Mr. Curtis has entirely omitted this anomalous genus in his work on the genera of British insects.

† The trophi of this genus and of *Xiphydria*, however, agree in being much shorter than in the *Tenthredinidæ*.

‡ Mr. Kirby (Mon. Ap. Angl. vol. i. 219) says that this species has thirteen joints in the antennæ. Might not this description have been drawn from a male? Jurine says the antennæ of this genus have from fourteen to twenty joints.

§ Kirby, loc. cit. (*Sirex*). Jurine (p. 76) says from nineteen to twenty-seven joints.

‖ Jurine, pl. 7, fig. 1 and 3.

¶ This (the manitrunk of Messrs. Kirby and Spence) is an extremely interesting part of the insect, as it clearly shows the correctness of the ideas of those authors in considering this part, which in the *Hymenoptera* and *Diptera*, and one

The trunk (thorax) also of *Xiphydria* perfectly corresponds with that of *Urocerus*, while the wings, not only of these two genera but also of *Lyda* and *Cephus*, appear to be formed on the same plan, clearly proving that although possessing characters sufficiently different to form two distinct families, the *Tenthredinidæ* and *Uroceridæ* can never be forced into different orders. Again, in the form and proportions of the legs there is a complete resemblance between *Xiphydria* and *Urocerus*. I need only mention the shortness of the intermediate tibiæ, the smallness of the fourth joint of the tarsus, and more particularly the dilatation of the posterior tibiæ both in the males of *Xiphydria* and *Urocerus*, while in the Tenthredinideous genus *Crœsus* both sexes have the posterior legs dilated.

Let us now turn our attention to the structure of the organs of oviposition and the uses of the different parts. These organs consist of a pair of outer valves or scabbards (valvæ) and the ovipositor (terebra), which latter comprises the sheaths (vaginulæ) and the saws (terebellæ).[†]

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tribe of the *Neuroptera*, is the true analogue of the upper and under sides of the (generally called) thorax of the beetles, as perfectly distinct from the collar in these orders, which latter part appears however to be wanting in the beetles. The under side of the manitrunk is called the antepectus by Mr. Kirby, (Kirby and Spence, vol. iii. p. 551,—prosternum Aud.,) and its sides turn upwards and nearly form a horny covering. Its upper side is formed of a ligamentous membrane, properly representing the pronotum of the beetles. Latreille (Hist. Nat. vol. xiii. p. 138) says, that this neck is formed by an elongation of the thighs (hanches) of the fore legs of *Xiphydria*. This is, however, quite erroneous, as on separating it from the trunk (which is very easily done) the fore legs are found attached to it; and on the under side, at its base, there are a pair of circular apertures forming sockets, in which the globose basal joint (coxa) of the fore legs may work backwards and forwards.

[*] Half the confusion in generic nomenclature has arisen from authors employing for new genera *synonymous* names of the genera from which their new groups have been dismembered. Surely when an Entomologist thinks it necessary to form a new genus he might give himself the additional trouble of finding a new name for it, retaining always the old generic name for the *typical* species of the old genus.

[†] There is also another character clearly proving that all these insects are formed upon a similar plan, namely, the existence of a pair of minute styliform

In all the insects of these families which I have examined there is a pair of outer crustaceous plates (scabbards or valves) differing in size in different genera, all formed alike and arising very near to the insertion of the true ovipositor, each valve being composed of two joints;* the first extending from the base to where the valve emerges from the abdomen and where the other joint (varying very much in length) is united to it by a membrane. These plates, which are of equal size, are concave in the inside for the reception of the ovipositor. In the *Tenthredinidæ* they are smooth and rather hairy at the apex, but in *Urocerus* they are scabrose. With regard to the use of these valves, Mr. Marsham, in the volume of the "Linnæan Transactions," has clearly proved that in *Ichneumon manifestator* they are only to be considered as the protectors of the ovipositor when at rest, and that they are not used in the great act of oviposition, but are thrown over the back and unemployed.

With regard to the ovipositor itself of the saw-flies (*Tenthredinidæ*), I cannot do better than give the following interesting extract from "Peck's Natural History of the Slug Worm," quoted by Kirby and Spence, (vol. iv. p. 154). He compares one of the saws and its sheath "with the tenon-saw used by cabinet-makers, which, being made of a very thin plate of steel, is fitted with a back to prevent its bending. This back is a piece of iron, in which a narrow and deep groove is cut to receive the plate, which is fixed; the saw of the *Tenthredo* is also furnished with a back, but the groove is in the plate and receives a prominent ridge of the back, which is not fixed, but permits the saw to slide forward and backward as it is thrown out or retracted. The saw of artificers," he adds, "is single, but that of the *Tenthredo* is double, and consists of two distinct saws with their backs. The insect in using them first throws out one, and, while it is returning, pushes forward the other, and this alternate motion is continued till the incision is effected, when the two saws, receding from each other, conduct the egg between them into its place. In the artificial saw the teeth are alternately bent towards the sides or out of the right line, in order that the fissure or kerf may be made sufficiently wide for the blade to move easily. To answer this purpose in some measure in that of the *Tenthredo*, the teeth are little twisted, so as

processes rising from each side of the last segment of the abdomen. They are to be seen in the *Tenthredinidæ* and *Ichneumonidæ*, and also in *Xiphydria* and *Urocerus*, although much more minute in these two genera.

* In *Oryssus* each is formed of three joints. (Latr. Gen. Crust. &c., vol. iii. p. 247.)

to stand obliquely with respect to the right line, and their point of course projects a little beyond the plane of the blade, without being laterally bent. And all those in each blade thus project a little outwards, but the kerf is more effectually made, and a free range procured for the saws by small teeth, placed on the outer side of each; so that, while their vertical effect is that of a saw, their lateral effect is that of a rasp. In the artificial saw the teeth all point outward (towards the end) and are simple; but in the saw of the *Tenthredo* they point inward or toward the handle, and their outer edge is beset with smaller teeth, which point outwards (towards the end)." Valisnieri, Reaumur, and De Geer describe the groove as being in the back; but in Mr. Peck's insect, if there is no error in his account, it is, as in the *Cicada*, in the saw itself. In the genus *Cimbex*, belonging to the same tribe, the saw differs in shape, being somewhat sigmoidal, or resembling the letter S, while in that of other saw-flies it is cultriform, with a concave edge: other minor differences distinguish them, which need not be particularized.

In *Cephus* the valves and the ovipositor itself are formed as in the *Tenthredinidæ*, except that the sheaths and the saws are not transversely striated; the connexion between each sheath and saw having the appearance of a longitudinal stria, and, in fact, beginning to assume somewhat of the horny appearance of the ovipositor of *Urocerus*, between which and the ovipositor of *Xiphydria* I cannot perceive the slightest difference of structure.

The last segment of the abdomen of the female of *Urocerus juvencus* appears, when viewed on the under side, as though divided into two segments, the apical part having at its base an excavated spot, which Latreille* regards as the anus.

Notwithstanding, however, the differences which certainly exist in the formation of the organs inclosed in the bipartite scabbard and valves in the different families above referred to, I think, from the circumstance of the minute styliform processes and the two external valves being similarly constructed in all these groups, we may without much difficulty trace the analogies of the other parts, (as has been attempted in detail in the 2d volume of my "Introduction to the Modern Classification of Insects.")

The manner in which the eggs are deposited by the ovipositor of the *Uroceridæ* and *Ichneumonidæ* does not appear to be ascertained, or whether the horny sides of the terebra are capable of extension on their under side. Messrs. Kirby and Spence observe upon the ovipositor of *Pimpla*, (a genus of *Ichneumonidæ*, in which it is very long, exserted, and slender,) "How the egg is propelled, so as to pass in safety from the oviduct *along* this extended and very slender instrument to the grub for which it is destined, has not been certainly ascertained; but from an observation of Reaumur's, it should seem that it is aided in its passage by some fluid ejected at the same time with it, or is so lubricated as to slide easily without being displaced." * From these remarks, however, we might almost infer that it was supposed that the egg passed along the exterior surface of the terebra, but since in the *Tenthredinidæ* the eggs are conducted *between* the saws, I think there can be no doubt but that they are placed in such a similar situation in the abdomen of the female *Ichneumons*, &c. that they must pass within and between those organs which are analogous to the sheaths and saws of the *Tenthredinidæ*, and which have here become tubiform, and which, there is little doubt, have also the power of being opened and expanded on the under surface.

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* Genera Crust. vol. iii. p. 238.

I do not intend to enter into a detail of the structure of the sting and ovipositor of the aculeate tribes, but shall only observe, that Latreille expressly says that the eggs do not pass through the former; † and that Messrs. Kirby and Spence describe the ovipositor as "the instrument of oviposition, being in some genera used as a weapon of defence, when it is called the *aculeus*;" ‡ and also they remark, that the stings of some *Hymenoptera* are analogous to the ovipositors of the majority of that order. § The manner in which the aculeate tribes deposit their eggs is, I believe, as yet, also unrecorded. || The plates, however, of Swammerdam may be consulted upon this subject by the student with great advantage, although this author was under the necessity of leaving the manner in which the eggs are excluded in doubt. ¶ (See his p. 205.)

I consider it therefore sufficiently proved that *Xiphydria* belongs

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* Introd. vol. iv. p. 211. "Le tube ovipare de cette espèce (*Pimpla atrata*, F., the largest *Ichn.*, six inches long), est envelloppé d'une gaine élastique, dont les parois cèdent lorsque l'animal veut atteindre la chrysalide enfoncée dans quelque fente ou ouverture d'un arbre." Bull. Sc. Nat. Jan. 1828, p. 163, (Notes sur les *Ichneumons* en général, by Dalman, from the Swedish Trans. for 1825.)

† Gen. Crust. vol. iv. p. 51.

‡ Introd. vol. iii. p. 390.

§ Ibid. vol. iii. p. 717.

|| It may be worth noticing, that in a female of some *Bombus* which I took in copulà, the sting was entirely protruded out of the abdomen.

¶ As however the structure of the sting is perfectly similar to that of the ovipositor of the *Ichneumons*, and as the egg in the latter passes down the ovipositor (see Lewis's papers in Mag. Nat. Hist.), it is agreeable to analogy that the eggs of the *Aculeata* pass down the sting.

to the family *Uroceridæ;* and if we recollect that Latreille admits into the family, without any expression of doubt, the genus *Oryssus,* which certainly differs from *Urocerus* in a much greater degree than *Xiphydria,* (although between the males of the latter genus and of *Oryssus* there is a very considerable resemblance,) I think there will remain little in favour of *Xiphydria* being placed at a distance from *Urocerus,* and as constituting a part of the family of the saw-flies, or as forming of itself the type of a separate family.

DESCRIPTION OF THE FIGURES.

Note.—The figures are more or less magnified, except where stated to the contrary.

Plate X. fig. 1. The larva making its way through the branch of willow, of the natural size.
2. The larva in the position in which it is generally at rest, and laying upon its side.
3. The larva stretched out, seen as when in motion.
4. The underside of the anterior segments of the larva, showing the position of the six feet.
5. One of the fleshy feet magnified.
6. The last segment of the body of the larva, upper side.
7. Do. under side.
8. Do. seen laterally; *aa,* the coronet of minute spines; *bbb,* the parts of which the apical spine is composed; *ccc,* portion of the segment.
9. The head of the larva seen from the front; *aa,* the rudiments of the antennæ; *b,* the upper lip; *cc,* the upper jaws; *dd,* the lower jaws; *e,* the lower lip.
10. The rudimental antenna, much magnified.
11. The upper jaw, do.
12. The lower jaws and lower lip of the larva; *aa,* the outer jointed part; *bb,* the ciliated interior part: *e,* the lip.
13. The lower jaw, more highly magnified.
14. A female pupa nearly ready to assume the perfect state.
15. A male pupa withered shortly after assuming that state.

P.S.—The parasitism of the genus *Urocerus* (*Sirex*), as suggested by the Baron de Geer, alluded to above,* has received another supposed confirmation in a memoir recently published by the Marquis Spinola, entitled "Considerazioni sopra i costumi degl' *Imenotteri* del *G. Sirex,* Fab. e sopra il miglior posto dei *Sireciti* nel metodo rationale;"† in which, after noticing the various observations previously made on the economy of the genus, the author states that "nell' estate del 1841, mi fu donato dal Signor Marchese Carlo Durazzo un insetto innominato col simplice inscrizione '*Parasita* in larva di *Farfalle*,' con somma mia sorpresa reconobbi in esso una femmina del *Sirex gigas*;" and on inquiring from Signor Franchi (from whom the insect had been obtained), he was informed that "la larva che ha dato recetto al parasita è quella del *Muchaon*. Pero quando si sviluppò l'insetto, essa erasi da quindici giorni messi in crisalide; si crede de poter anche asserire di aver veduto un *Sirex* uscire dalla crisalide del *Podalirius*." From these remarks, and the statements of St. Fargeau, the Marquis arrives at the conclusion that "le larve dei *Sireci* sono zoofaghe," proposing a classification of the order requisite for its distribution, in accordance to the supposed Zoophagous character of the *Sirecidæ*.

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* The Count St. Fargeau (Encyc. Méth. t. x. p. 770, and Hist. Nat. Ins. Hym. t. i. p. 5, note 3,) has reaffirmed the parasitism of *Urocerus.*

† Genova, 1843. 8vo.

Having in the preceding pages endeavoured to prove the affinity of *Xiphydria* and the *Uroceri*, as well as to establish the Xylophagous character of the family formed of these two genera, I have deemed it necessary to notice the remarks of the Marquis Spinola cited above.

That the exuviæ observed by the Count St. Fargeau lying at the side of the pupa of the *Urocerus* were those of the larva of some Longicorn beetle, upon which the *Urocerus* had parasitically subsisted, as considered by the Count, admits in my opinion of much doubt; I consider in fact that they were the exuviæ of the larva of the *Urocerus* itself. The structure of the head and manducatory organs of the latter in fact so closely resemble those of a Longicorn larva, that it is not surprising that the Count St. Fargeau should have mistaken them for the remains of the larva of a beetle which the *Urocerus* had devoured. It will of course follow that the finely pulverised particles of wood found in the burrows of these insects are the result of the boring of the *Urocerus* itself, and not of a larva upon which it has subsisted.

Neither can I consider the statement of the Marquis Spinola as more satisfactory in disproving the Xylophagous character of the *Uroceridæ*. The unsatisfactory mode in which the statement is made,—the very doubt of Signor Franchi, whether he had not obtained *Urocerus gigas* not only from *Papilio Machaon*, but also from *Papilio Podalirius*, (thus establishing a case of parasitism of one species upon two distinct species of animals, a circumstance of very unusual, if not of doubtful, occurrence,)—the well-known habits of the *Uroceri*, and of the two species of *Papilio* in question, and the repeated opportunities offered by rearing the latter insects, as is so commonly practised abroad, and which have never hitherto afforded a case in support of such parasitism,—the totally different localities of the insects in question, the *Uroceridæ* inhabiting fir districts, and the *Papiliones* moist districts, where their favourite food occurs,—the many instances on record of the *Uroceridæ* being found in the larva state in the body of trees, where of course they could not be parasitic upon the *external feeding* larvæ of the two species of *Papilio* in question,—the impossibility of these larvæ being at one time internally parasitic on the larvæ of the *Papiliones* (as must have been the case with Signor Franchi's specimen), and externally parasitic on Xylophagous larvæ, feeding in the interior of trees, (like that of *Scolia,* observed by M. Passerini, which has also been assumed to be the case with the Urocerous larva,)—and lastly, but by no means of least importance, the structure of the mouth of the larvæ of the *Uroceridæ*, excellently adapted, from the formation of the mandibles, for feeding upon solid wood, but quite unlike those of any parasitic Hymenopterous larva,—are all circumstances which seem sufficiently to disprove the conclusion that "le larve dei *Sireci* sono zoofaghe."

The genus *Cephus,* Latr. (*Trachelus,* Jur.; *Astatus,* Klug,) in various respects is one of great importance in regard to the relationships of the insects before us; and since the preceding memoir was written, several valuable observations have been made on its preparatory states, which throw considerable light upon its affinities, a circumstance of no little importance, when it is remembered that it has been arranged by the three great Entomologists, Leach, Klug, and Latreille, in as many different families, namely, the *Xiphydriadæ*, *Siricidæ*, and *Tenthredinidæ.*

The larva of *C. abdominalis* was observed by the late M. Audouin to be produced from eggs deposited in a spiral direction round the young shoots of the pear, the *larva feeding within the slender shoots*, and being fleshy, with six minute thoracic legs, but destitute of prolegs, and with the terminal segment of the abdomen attenuated, and terminated by two very minute points; there is also a minute conical lobe, near the base, on each side of this segment. This memoir has not yet been published.

A memoir on *Cephus pygmæus* was however published by MM. Dugaigneau and De Tristan, in the Memoirs of the Société des Sciences, &c. d'Orleans, vol. i., in which the injuries committed by this insect upon the rye crops in France were detailed, and the insect described; and M. Dagonet, in a series of observations made in 1839 and 1840, published at Chalons in 1840 and 1841, has also detailed the habits and structure of the same larva, (without being aware of its being that of the genus *Cephus*): and still more recently, an excellent memoir on the same insect has been published by M. Guérin Meneville, with ample details of the larvæ, which agree with those of *C. abdominalis* described above. It is apodal, or rather has the three thoracic segments furnished beneath with "des espèces de mamelons destinés à remplacer les pattes."* In its larva state it lives within the stems of the rye. Unfortunately M. Guérin Meneville had not discovered the pupa, but adds, "elle doit se métamorphoser dans la coque transparente que la larve se construit, et que nous avons représentée à côté de la figure de cette larve." In the description of the plates, however, he incorrectly describes the figure here referred to as the "Nymphe du *Cephus pygmæus* renfermée dans son tube," which has doubtless led Mr. Curtis, who has copied this figure, in his memoir recently published in the Transactions of the Royal Agricultural Society, to refigure this cocoon, and describe it as the true pupa of the *Cephus.*

2. *On the Proceedings of a Colony of* Polistes gallica, *introduced into my Garden at Hammersmith from the neighbourhood of Paris.*

On the 9th July, 1837, Messrs. Audouin, Brullé, and myself, being engaged in an Entomological excursion in the woods round Sévres, near Paris, discovered in the Parc de Belle Vue, upon a wall with a southern aspect, many nests of *Polistes gallica*, of different sizes, and generally a foot or two from the ground. They were attached to the wall by a small layer of the material of which they were composed, and a footstalk about one-sixth or one-fourth of an inch long, attached at the middle of the back of the layer of cells, which of course had a horizontal position. The day was rather overcast, and the wasps had not much activity. On one of the largest of the nests were seated about half a dozen wasps, one of which was a female, and the others workers. When approached they did not fly off, but ran about the surface of the nest with their heads up, in a menacing position, seeming to defend it, like the great ants when their ant-hill is disturbed. On one nest, containing seventeen cells (some only just commenced), was one female and two workers, which we secured with our forceps. Another larger nest I brought away, having removed its attendant wasps.

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* Notice sur quelques Insectes nuisibles. Paris, 1843, p. 39.

These I put into my box, and in a few days some more neuters were produced. These I lapped up alive in paper with the nest, and brought to Hammersmith. I now kept them some days in a tumbler, giving them sugar and honey to eat, which they seemed to relish, as well as the young grubs in some of the cells. I subsequently took off the gauze covering of the tumbler, and placed it in the open air, to see the proceedings of the insects. The day was very hot, and for some time they were occupied in vibrating their wings whilst standing on the top of the nest, and elevating the head and front of their bodies: at length they ventured to take wing, and I was anxious to ascertain in what manner these insects (now for the first time let loose) would proceed so as to obtain a knowledge of the neighbourhood, and thereby be enabled to retrace their steps. There were five wasps, and their proceedings were alike. After quitting the glass they made a very small circuit round it, then another rather larger, and so by degrees till the diameter of the circle was not less than a yard. They then alighted on the leaves of the adjoining trees, and seemed much delighted to bask in the sun. They returned from time to time to the glass, and in the afternoon four out of the five returned. I then brought the glass into the house for the night, putting it out again the first thing on the next morning, when the missing wasp immediately made its appearance, hovering over the glass. I noticed at first that they passed the night with their bodies entirely immersed in the cells, but afterwards they congregated on the top of the gauze covering. In a few days I put the glass out of doors, when the wasps did not return to it regularly, but left it one by one. A little rain got into the glass one evening (notwithstanding I had put a cover over it), and melted the sugar, which attracted the ants and earwigs, (the wasps being all absent,) which devoured not only the sugar, but also the grubs. On Friday, 28th July, afternoon, the nest was deserted. Saturday was a wet and boisterous day, and the wasps did not return. Sunday, ditto. Monday was a fine day, and three of the wasps returned early in the morning, but of course found the nest without grubs. Some ants were in the glass, and occasionally one found its way upon the nest, when they were assaulted by the wasps. The mode of attack of the latter was singular; they appeared irritated, raised the front part of the body, made a dash at the ant with the jaws, and instantaneously jirked the intruder over their backs, without either stinging or killing it.

The spiracles of the larva, according to M. Audouin's observations and figures (MS. Obs. 1835, No. 23, inedit.), are placed only on the meso- and meta- thorax and first abdominal segment, a peculiarity requisite from the dilated front of the body, which fills up the cell, and prevents access of air to the hind part of the body.

The flight of these wasps is very peculiar, and quite unlike that of the *Odyneri* or *Vespæ*. The long hind legs are extended backwards and downwards, reminding one of the flight of *Fœnus*. There is a species of *Tenthredo* very nearly allied to *T. scrophulariæ*, which I saw on the wing in September following, and which exactly reminds one of the flight of the *Polistes*.

P.S.—The preceding details offer abundant suggestions in support of the opinion, that it is principally by means of sight that insects, especially of the social species, are directed in their flights, and thereby enabled to retrace their steps to the hive or other dwelling place, and which has been maintained by Mr. Newport in a preceding page of the present volume. The cautious proceedings of my colony of wasps clearly indicated a gradual increase of knowledge of immediately contiguous objects; but can we suppose it possible that the same kind of knowledge is obtained by the bee in a direct flight of several miles from its hive, especially at a time whilst all its attention and energies are devoted to the great business of its life, that of hunting for and pillaging flowers?

I shall here mention, in support of the power assumed to be possessed by insects, of obtaining knowledge by means of sight, a circumstance which I observed many years ago in Fleet Street, and which, although it indicates an error of sense, seems more completely to establish the one in question than perhaps any previously recorded fact. On a bright sunny day I observed a white butterfly beating itself with violence against the outside of the panes of glass in a window on the north side of the street, on which the sun was shining with great force; at first I could not comprehend what could induce this action in the butterfly, but the mystery was solved when, on looking into the window, I observed the many gaily coloured labels of a chemist's jars and packets placed on the opposite side of the glass. This had doubtless been mistaken by the butterfly for flowers, which it endeavoured to reach in order to rob them of their sweets; of which of course the insect could have obtained no intimation by its sense of smell. How is it possible, with such facts as these before us, to adopt the conclusion of a work recently published, that insects are destitute of the senses? How is it possible to arrive at so unphilosophical a conclusion, that the highly organized eye of an insect does not possess the sense of sight?

3. *Some account of the Habits of a new Species of fossorial Hymenopterous Insect from South Australia.* *By* J. O. Westwood.

[Read 3d January, 1842.]

The various modes employed by the nidificating aculeated *Hymenoptera*, in the construction of their nests, and the adaptation of their structure to the purposes of their economy, in this respect afford materials for observations of the most interesting as well as instructive kind; interesting, from the singularity of the manœuvres and assiduity of the insects; and instructive, from furnishing us with complete details of the history of particular species, thereby confirming, in the most satisfactory manner, their relations with other species. The nest-making *Aculeatæ* may be divided into several distinct groups, from the mode of construction of their nests. Not to speak of the social kinds, which form beautiful structures composed of series of hexagonal cells, or of the social humble bees, we find the solitary nidificating species again divided into such as merely content themselves with making a burrow in rotten wood, or in a sand-bank, in which they bury a caterpillar, or other insect or spider, and those which fetch the materials of their nests from a distance, which they then either employ as a lining to their burrows, or else form into an exposed nest, without previously forming any burrow.

In our own country I believe no fossorial species exists which forms exposed nests, all the species (except the parasitic ones) possessing an economy, which is indicated by their name of *Fossores*. Some of the species, indeed, as well as some of the wasps and bees, fetch materials from a distance to line their cells, already formed in burrows; a few of the bees however (such as *Megachile muraria*) form naked nests on the surface of walls, &c. The exotic genus *Pelopæus* is the only recorded instance of a fossorial insect making an external nest.

The nests which, with their inhabitants, form the subject of the present communication, were brought from Port Lincoln, South Australia, but unaccompanied by any details. They are however evidently nests formed externally, in the same manner as the nests of the *Megachile muraria*. They came to me in several masses, each consisting of two or three cells; each cell is about an inch long, and half an inch in diameter; they are smooth on the inner surface, and the case is about the thickness of the shell of a hazel nut, with the outer surface very rugose, as though formed of a succession of short transverse layers, which have dried into rounded or elongated nodules. The substance of which they are composed is evidently earthy, as it will not burn, but retains its form when thrown into the fire.

On opening these cells I found in each a delicate white slender membraneous sac, affixed by its base to the bottom of each cell, the upper end being free, and generally open, the insect having made its escape; on the outside of this membraneous bag I found in several of the cells portions of the cheliceræ of a large species of spider, which had evidently been devoured by the inhabitant of the cell whilst in the larva state, and previous to the formation of the membraneous sac. Within one of these sacs I found a dead larva, represented in Pl. X. fig. 18, not differing in its structure from the larva of other fossorial species; whilst in each of two other of the sacs I found the dead pupa of the insect, which I at first mistook for an *Ichneumon*, from the great length of the antennæ, and the slenderness of the body. These pupæ were almost arrived at the perfect state, so that, with the exception of the wings, all the parts could be distinctly traced, as well as the colours of the future imago. The antennæ are laid along the sides of the breast, and are long and slender, extending rather beyond the posterior coxæ, and consist of thirteen joints, thus indicating the specimens to be males. The basal joint is robust, the second very short, and the remainder slender, and rather elongated. The fore wing, when moistened with water, and placed under the microscope, was seen to have two deep folds on the costa, whereby its length was reduced nearly one-half. The most peculiar feature was the large square prothorax, resembling that of the genus *Aporus*, and of various exotic *Pompili*; it is, in fact, by the structure of this part of the thorax, which is employed amongst the fossorial *Hymenoptera* as a primary distinctive character of the several families, that we are enabled to determine the natural relations of this insect. The entire body is black, and clothed with a very slight griseous pubescence. The antennæ are white, and the tibiæ and tarsi brownish white. The abdomen is slender, and composed of seven segments; at first the dorsal portion of the abdomen appeared to have the segments posteriorly margined with grey bands, but I found this to result entirely from the pellicle of the pupa having been scaled off from the base of each segment.

The strength of the founder of these nests may be imagined from the fact, that the single jaw of the spider found in one of the cells was as large as the entire head and prothorax of the perfect insect. The combat between the parent fossor and its prey must therefore be an interesting scene. It is on this account that I apply to the species the name of *Pompilus? audax.*

P.? ater, pubescens, prothorace magno quadrato, antennis albis, tibiis tarsisque fusco-albidis.

Long. corp. lin. 5½.

Habitat in Australia meridionali, Port Lincoln.

Pl. X. fig. 16 & 17, cells; 18, larva; 19, pupa, dorsal surface; 20, pupa, ventral surface, 21, unfolded wing, 22, chelicera of spider.

XXV. *Descriptions of the* Chrysomelidæ *of Australia, allied to the Genus* Cryptocephalus. *By* W. W. SAUNDERS, Esq., F.L.S., &c.

[Read 3rd January, 1842, &c.]

THE large family *Chrysomelidæ*, the species of which are spread over almost every part of the world, has been much neglected by Entomologists, in comparison with other families of the order *Coleoptera;* and this is remarkable, as many of the individuals comprising it are extremely beautiful in colour, and the whole being phytophagous, or feeders on vegetable matter, it is important that they be well understood, for the purpose of ascertaining the habits and economy of those species, which, from their immense numbers, occasionally do such serious injury to the agriculturist both in this country and abroad. In the following papers it will be my endeavour to fill up a portion of the information required; and seeing that scarcely any of the numerous species from Australasia have been described, I purpose characterising such as are allied to the well-known genus *Cryptocephalus*, so abundant in species in the temperate parts of the old and new world. I say allied, for although there are certain species from Australasia closely approximating to *Cryptocephalus*, yet there are none that I can discover strictly belonging to it. Most of the species depart widely from the typical *Cryptocephali*, and are remarkable for the way in which the scutellum is elevated posteriorly, rising at times considerably beyond the plane of the elytra, and nearly at right angles to it. Carefully reviewing the various forms which have come under my observation from Australasia, I find they resolve themselves into several sub-genera, the characters of which are taken chiefly from the antennæ, and general shape of the body. The sub-genera form two sections: 1st. Those which have the lateral margins of the prothorax smooth and entire; 2nd. Those in which it is rough or dentate. The present paper will include the species coming under the section with smooth and entire lateral margins to the prothorax, and the subgenera to which they belong may be characterised as follows :—

Antennæ	subclavate	6 terminal joints, forming a distinct clava ..	*Dicenopsis.*
		7 terminal joints, gradually increasing in size	*Idiocephala.*
	ensiform		*Aporocera.*
	filiform ..	5th joint twice as long as the 4th	*Mitocera.*
		5th joint about the same length as the 4th .	*Ochrosopus.*

DICENOPSIS (*δικην-οψις*).

Antennæ inserted between and near the eyes, somewhat approximating, short, not half the length of the body, subclavate, 11-jointed: first joint pyriform, large; second small, orbicular; third, fourth and fifth slender, long, nearly equal in length; the remainder short, robust, of equal length, forming a kind of lengthened club, the terminal joint with a small apical appendage. *Head* vertical, immersed in the thorax up to the eyes. *Eyes* reniform. *Thorax* rounded in front, very convex, posteriorly as broad as the elytra. *Scutellum* subquadrate, elevated posteriorly. *Body* short, robust, cylindric. *Tarsi* 4-jointed; third joint deeply bilobed, and nearly concealing the fourth.

Dicenopsis hæmatodes. (Plate IX. fig. 1.)

Syn. *Cryptocephalus hæmatodes.* Boisduv. Voyage de l'Astrolobe.

Body shining, brownish red, with the eyes and clava of the antennæ black brown. The upper surface deeply and coarsely punctured; the under surface punctured and pubescent. Legs brownish red, with a line along the upper surface of the femora; apices of the tibiæ and tarsi black.

Length $\frac{7}{20}$ inch.

In the Cabinets of the Rev. F. W. Hope and J. O. Westwood, Esq.

Native of New Holland and Van Diemen's Land.

This species nearly approaches to *Cryptocephalus*, but differs in the short sub-clavate antennæ.

IDIOCEPHALA, Hope, MSS. (*ιδιος κεφαλη*). Type *A. Roei.*

Head vertical, rotundate; immersed in the thorax up to the eyes. *Eyes* reniform. *Antennæ* wide apart, situated close to the eyes, subclavate, half as long as the body in the females, nearly as long as the body in the males; 11-jointed: first joint robust, pyriform; second small, obconic; third, fourth and fifth longish, nearly of equal length, slender; the remainder sensibly larger, and gradually decreasing in length in the females, nearly of the same length in the males; the terminal joint with a small apical projection. *Thorax* transverse, as broad as the elytra, somewhat gibbous, narrow and truncate in front, rounded on the sides. *Scutellum* subtrigonate, much elevated at the apex. *Body* short, ovate; compressed in sect. 1; nearly cylindric in sect. 2. *Legs* shortish. *Tarsi* 4-jointed: three first joints nearly of equal length; third deeply bilobed; fourth slender, cylindric, reaching but little beyond the third.

This subgenus is distinguished from *Dicenopsis* before described by the antennæ, but more especially by the general shape of the species. *Dicenopsis*, however, approaches very closely to some of the robust species of the present subgenus.

Section I.

(Body ovate, compressed.)

Sp. 1. *Idiocephala Roei*, Hope, MSS.

Head rufous brown, deeply punctured, with the vertex, eyes, and antennæ black. Thorax rufous, shining, with a well defined black diamond-shaped patch on the centre of the disk, prolonged posteriorly to the scutellum, widely punctured. Scutellum black. Elytra rich shining green, deeply punctured, and wrinkled transversely, with a narrow marginal band of ochraceous yellow, terminating before the apex; under side of the body pale ochraceous yellow, pubescent, with the metasternal region black, and densely covered with silvery adpressed hairs. Legs black, with the bases of the femora and tibiæ rufous brown.

Length, female $\frac{21}{100}$, male $\frac{17}{100}$ inch.

From the Swan River.

In the Collections of the Rev. F. W. Hope and J. O. Westwood, Esq.

Var. *Atripennis*, W. W. S.; *Anodonta atripennis*, Hope, MSS.

Elytra black, with a purple iridescence; third and fourth joint of antennæ brownish.

Collections of Rev. F. W. Hope and J. O. Westwood, Esq.

Sp. 2. *Idiocephalus elegans*, W. W. S. (Plate IX. fig. 2.)

Head yellow brown, shining, slightly punctured, with a narrow black transverse band on the upper part, close to the margin of the thorax. Antennæ black, with the second, third and fourth joints inclining to rufous brown. Eyes black. Thorax yellow brown, smooth, shining, slightly stained with black on the centre of the anterior margin, and with a well defined narrow longitudinal diamond-shaped mark on the vertex. Scutellum yellow brown, subquadrate. Elytra of a brilliant shining dark green, deeply punctured, and waved transversely, with a band of straw colour along the exterior margin, reaching from the base to very near the apex, gradually diminishing in width as it approaches the latter part. Under side of body yellow brown, slightly covered with short adpressed silvery hairs; the sides of the mesosternum dark fuscous. Legs yellow brown, with the apices of the tibiæ and tarsi black.

Length nearly $\frac{20}{100}$ inch.

Habitat Hunter's River, New South Wales.

In my own Cabinet, and that of the Rev. J. W. Horsley.

This elegant species is nearly allied to *Idiocephalus Roei* before described, but differs in the marking on the thorax, and in the character of the marginal band of the elytra. It is a native of the east coast of New Holland, where it was taken by Mr. J. Horsley, a very observing Entomologist. *Idiocephalus Roei*, its nearest ally, is a native of the western coast and Van Diemen's Land, where it appears to be one of the commonest species; so that the two, although so nearly allied, are inhabitants of parts of New Holland wide apart.

Sp. 3. *Idiocephala pulchella*, Hope, MSS.

Head rich rufous brown, with the vertex black, and longitudinally striate. Eyes and antennæ black, the latter with the third and fourth joints dull brown. Thorax rich rufous brown, shining, quite smooth. Scutellum of the same colour, very much elevated posteriorly. Elytra rich shining green, with a broad rufous brown lateral marginal band, produced inwards just below the shoulders. Under side of body rufous brown, pubescent. Legs and tarsi black.

Length $\frac{18}{100}$ inch.

Native of New Holland.

In the Collection of the Rev. F. W. Hope.

Sp. 4. *Idiocephala cyanipennis*, Hope, MSS.

Head, eyes and antennæ glossy black. Thorax rufous brown, shining, smooth. Scutellum black. Elytra shining steel blue, with purplish iridescence closely and deeply punctured, the punctures forming irregular striæ near the apex, each stria of two rows of punctures. Under side of body pale ochraceous yellow. Legs and tarsi black.

Length of female $\frac{16}{100}$ inch; do. of male ·13 inch.

Native of New Holland.

In the Cabinets of the Rev. F. W. Hope and J. O. Westwood, Esq.

Sp. 5. *Idiocephala albilinea*, Hope, MSS.

Head black, longitudinally striate, with a straw-coloured patch on the sinus of each eye, and another just below the insertion of the antennæ. Eyes and antennæ black. Thorax black, with the lateral margins white, widely and somewhat obsoletely punctured. Scutellum black, much elevated behind. Elytra bright yellowish brown, with a quadrate black patch on the disk, a little below the middle, which joins the scutellum by a sutural margin of the same colour; deeply and coarsely punctured, the punctures arranging themselves into regular striæ near the apex. Under side of body, legs and tarsi, shining black; the former minutely punctured, and slightly pubescent.

Length $\frac{16}{100}$ inch.

Native of Van Diemen's Land.

In the Cabinets of J. O. Westwood, Esq. and the Rev. F. W. Hope.

Sp. 6. *Idiocephala marginicollis*, W. W. S.

Head black, rugose, with the antennæ of the same colour. Eyes black, margined internally with corneous yellow. Thorax black, glossy, sparingly punctured; margined laterally with a very distinct narrow band of yellowish white. Scutellum quadrate, smooth, shining black. Elytra deeply punctured, glossy black. Legs and under side of body black; the latter slightly punctured.

Length $\frac{15}{100}$ inch.

Habitat New Holland.

In the Collection of the British Museum.

A very distinct species, and easily detected by its shining black colour, with white margins to the thorax.

Sp. 7. *Idiocephala atra*, W. W. S.

Black; face striate, with fine longitudinal lines. Thorax shining, slightly punctured, the punctures widely spread. Scutellum smooth, shining. Elytra shining, irregularly striate and punctured, especially near the shoulders, which are slightly rugose. Abdomen somewhat longer than the elytra; covered underneath with silvery adpressed pubescence.

Length $\frac{18}{100}$ inch.

Native of Van Diemen's Land.

In the Collection of J. O. Westwood, Esq.

Section II.

(Body cylindrical.)

Sp. 8. *Idiocephala Bynoei,* W. W. S.

Head punctured, rufous brown, with a band across the vertex, near the margin of the thorax, and sinus of the eyes, black. Eyes black. Antennæ black. Thorax bright rufous brown, gibbous in front, shining and deeply punctured. Scutellum black, shining, rounded posteriorly. Elytra a little broader than the thorax, deeply punctured, with slight irregular transverse waves; rufous brown, with the base irregularly margined with black, the suture narrowly margined with the same colour, and an irregular broad transverse black band a little above the apex. Under side of body rufous brown, the mesosternum black, covered with short adpressed silvery pubescence. Legs rufous brown, with the apices of the tibiæ and tarsi black.

Length $\frac{20}{100}$ inch.

Collected in New Holland by Mr. Bynoe.

In the Collection of the British Museum.

This is a robust and well marked species. The description is drawn apparently from a male insect.

Sp. 9. *Idiocephala rugosa,* Hope. Olivier?

Head black, subrugose, and marked with faint longitudinal striæ. Eyes and antennæ black. Thorax black, shining, very gibbous in front, rugose and deeply punctured. Scutellum black, subtrigonate, smooth, very elevated behind. Elytra black, shining, with the apices rufous brown, rugose and deeply punctured, the part adjoining the scutellum elevated. Under side of body black, with the sides of the metasternal region densely covered with golden pubescence; also a small patch of the same coloured pubescence on each side the thorax underneath, and lateral patches on each segment of the abdomen, gradually decreasing in size with the segments. Legs black, shining, with purplish iridescence. Tarsi black.

Length $\frac{18}{100}$ inch.

Native of New Holland.

In the Cabinet of the Rev. F. W. Hope.

Sp. 10. *Idiocephala similis*, W. W. S.

Entirely black. Head deeply and coarsely punctured. Thorax shining, gibbous in front, deeply and rugosely punctured. Scutellum much elevated behind, smooth. Elytra rugosely punctate, the surface undulating, shining, somewhat fuscous, and very rounded at the apex. Under side of body punctate, with the sides of the mesosternal region covered with adpressed silvery hairs, and also lateral patches of the same coloured pubescence on each segment of the abdomen, gradually decreasing in size with the segments. Legs with a purplish iridescence.

Male?—Length $\frac{14}{100}$ inch.

Habitat New Holland.

In the Cabinet of the Entomological Club.

Female.—Length $\frac{16}{100}$ inch.

Taken in the vicinity of Sidney, New South Wales, by Mr. Darwin.

In the Cabinet of the Entomological Society.

This species is nearly allied to *I. rugosa*, but wants the rufous apex to the elytra, and having silvery instead of golden pubescence on the under side of the body. The specimen belonging to the Entomological Club has lost its antennæ, but I have reason to suppose it is a male.

Sp. 11. *Idiocephala flaventris*, Hope, MSS.

Head jet black, longitudinally striate on the vertex, with a yellow heart-shaped patch on the face. Thorax rufous brown, shining with a black line running along the anterior margin. Scutellum subtrigonate, black, somewhat elevated at the apex. Elytra shining black, deeply and coarsely punctured, regularly striate, and marked a little above the middle with a V-shaped yellow band, the angle pointing posteriorly, and the sides not reaching the lateral margins. Under side of body pale yellow, shining. Legs pale yellow, with the apices of the tibiæ and tarsi black.

Length $\frac{14}{100}$ inch.

Native of New Holland.

In the Cabinet of the Rev. F. W. Hope.

Sp. 12. *Idiocephala tasmanica*, mihi.

Head rufous brown, with three round yellow spots placed in a triangle on the face. Eyes and parts of the mouth dark brown. Antennæ fuscous brown, gradually getting darker towards the apex, with the basal joint dull yellow. Thorax rich rufous brown, with the lateral and anterior margins yellow, and a narrow yellow longitudinal streak, half the length of the thorax, on each side of the vertex, commencing on the posterior margin. Scutellum yellow brown. Elytra rich rufous brown, with the apex, and a narrow margin round the scutellum, yellow; each elytron with four nearly equidistant longitudinal ridges, the two nearest the suture well defined, the others sub-obsolete, deeply and minutely punctured. Under side of body with the thoracic and metasternal regions dusky brown (the latter deeply punctured), abdomen yellow. Legs rufous brown, with the apices of the femora yellow; tarsi dusky.

Length $\frac{12}{100}$ inch.

In the Collection of the Entomological Society.

Taken in Van Diemen's Land by Mr. Darwin.

Sp. 13. *Idiocephala sub-brunnea*, mihi.

Head shining black, minutely punctured, with the face rufous brown. Eyes black; mouth piceous. Antennæ black, with the first and second joints rufous brown. Thorax rufous brown, shining, somewhat gibbous in front, obsoletely punctured. Scutellum smooth, shining black. Elytra corneous brown, shining, deeply punctured, the punctures forming regular striæ laterally near the apex, with a margin along the base, which extends round the scutellum and half way along the suture, black, with a greenish iridescence. Legs corneous brown, with the tarsi piceous. Under side of body corneous brown, pubescent, with the mesosternal region black.

Length $\frac{9}{100}$ inch.

In the Cabinet of the Entomological Society.

Taken by Mr. Darwin in the vicinity of Sidney, New South Wales.

Sp. 14. *Idiocephala Darwinii*, mihi.

Head black, with a large triangular patch just above the mouth rufous brown; deeply punctured. Eyes black. Antennæ dusky brown, with the first, second and third joints underneath rusty brown. Thorax rufous brown, shining, punctured, somewhat gibbous in front, with the anterior margin piceous. Scutellum smooth, black, shining, with a violet coloured iridescence, but little elevated at the apex. Elytra dark metallic green, with the apex of a livid horn colour, deeply punctured; the punctures forming regular striæ laterally near the apex. Legs horn-coloured, with the tarsi dusky. Under side of the body black, pubescent, with the apex of the abdomen horn-coloured.

Length $\frac{9}{100}$ inch.

In the Cabinet of the Entomological Society.

Taken in the vicinity of Sidney, New South Wales, by Mr. Darwin.

APOROCERA (απορος κερας), mihi.

Head vertical, subtriangular. *Antennæ* two-thirds the length of the body, 11-jointed; the first swollen, pyriform: the second globular, small; the remainder subtriangular, broad, flattened, nearly of equal length, the fifth joint being somewhat the longest and broadest; the last joint with a terminal conical point, like a very small additional joint. *Thorax* gibbous in front, as broad as the elytra. *Body* cylindrical. *Tarsi* 4-jointed, the penultimate joint deeply bilobed.

This genus is nearly allied to *Clythra*, as before stated, differing chiefly in the antennæ, which are long, with the joints broad and flattened, without any tendency to being pectinated. It also approaches near to *Cryptocephalus;* but the antennæ again well distinguish it from that genus, which has those organs filiform.

Sp. 1. *Aporocera bicolor*, mihi. (Pl. IX. fig. 3.)

Head vertical, subtrigonate, not so broad as the thorax, red brown; with the eyes kidney-shaped and black. Antennæ, arising from the sinus of the eyes, black, 11-jointed, and rather more than two-thirds the length of the body, pubescent. Thorax as broad as the elytra, rounded and gibbous in front, smooth and shining, of deep reddish brown, nearly as long as broad, with a broad shallow transverse furrow a little behind the middle, and curving posteriorly. Scutellum small, black-green, triangular. Elytra nearly twice as long as broad, of a dark black shining green, deeply and coarsely punctured in regular striæ; each elytron with a large lateral lobe projecting downwards just behind the shoulders. Body beneath reddish brown, pubescent, with the region of the metasternum black, and the joints of the abdomen also striped transversely with the same colour. Legs reddish brown, with the apices of the femora and tibiæ and the tarsi black. Tarsi 4-jointed; third joint deeply bilobed, the fourth joint little exceeding it.

Length $\frac{25}{100}$ inch.

In the Cabinet of the Rev. F. W. Hope.

Habitat New South Wales.

Sp. 2. *Aporocera apicalis*, W. W. S. (Pl. IX. fig. 4.)

Head vertical, subtriangular, red brown, with the eyes kidney-shaped and black. Antennæ inserted in the sinus of the eyes, not so long and rather stouter than in *A. bicolor*. Thorax red brown, gibbous and rounded in front, as broad as the elytra, with a wide shallow transverse furrow curved posteriorly a little behind the middle, smooth and somewhat shining. Scutellum small, triangular, red brown, margined with black. Elytra not quite twice as long as broad, deeply and coarsely punctured in regular striæ, red brown, with the apices black; each elytron having a large lateral lobe projecting downwards a little behind the shoulders. Under side of body black and pubescent. Legs red brown, with the apices of the femora and tibiæ and the tarsi black.

Length $\frac{25}{100}$ inch.

In the Cabinet of the Rev. F. W. Hope.

Habitat New South Wales.

Sp. 3. *Aporocera chalybea*, W. W. S.

Head dark chesnut brown, with the region about the mouth ochraceous, and the eyes black. Antennæ black. Thorax pitchy black, margined with ochraceous, shining and deeply punctured, except along the vertex and near the shoulders, which portions are extremely smooth. Scutellum quadrate, shining black, much raised behind. Elytra of a shining chalybeate blue, deeply and irregularly punctured. Under side of body and legs pale ochraceous yellow; the latter ochraceous, with the apices of the tibiæ and tarsi black.

Length $\frac{30}{100}$ inch.

From Port Essington.

In the Collection of the Rev. F. W. Hope.

Sp. 4. *Aporocera catoxantha*, Hope, MSS.

Head pale ochraceous, with the eyes black. Antennæ black, with the basal joint brown, as long as the body, somewhat slender. Thorax ochraceous, shining, punctured, except near the shoulders.

Scutellum subquadrate, pitchy brown, elevated behind. Elytra ochraceous, deeply and irregularly punctured, with broad lateral margins of dark metallic green, and the space round the scutellum of the same colour. Under side of body pale ochraceous. Legs pale ochraceous, with the apices of the tibiæ and tarsi black.

Length $\frac{25}{100}$ inch.

From Port Essington.

In the Cabinet of the Rev. F. W. Hope.

This species, in the length and slenderness of the antennæ, differs somewhat from the species on which the group was founded, but still there can be no doubt of the propriety of its being placed in the sub-genus *Aporocera*.

MITOCERA (*μιτος κερας*), W. W. S.

Antennæ inserted between and close to the eyes, longer than the body, filiform, 11-jointed: first joint large, pyriform; second small, obconic; third and fifth very long, of equal length; fourth joint half as long as the third and fifth; each of the remainder as long as the fourth. *Head* vertical, immersed in the thorax up to the eyes. *Eyes* reniform. *Thorax* subquadrate, narrowed in front, transverse, convex posteriorly, nearly as broad as the elytra. *Body* subelongate, flattened. *Tarsi* 4-jointed: first joint twice as long as the second, the third deeply bilobed and almost concealing the fourth.

Mitocera viridipennis, W. W. S. (Pl. IX. fig. 5.)

Head light red brown, with the crown, eyes and antennæ black. Antennæ one-third as long again as the body. Thorax red brown, with slightly raised lateral margins, the upper surface shining, coarsely and irregularly punctured. Scutellum subtrigonate, dark blue green. Elytra dark shining blue green, deeply and irregularly punctured, rounded at the apices where the margins are reddish brown. Under side of body light red brown, pubescent. Legs black, with the femora red brown.

Length $\frac{30}{100}$ inch.

From the Swan River.

In the Collection of the Rev. F. W. Hope.

A very distinct form, remarkable for the great length of the antennæ, with the third and fifth joints long.

OCHROSOPSIS (*ωχρος οψις*), W. W. S.

Head vertical or nearly so, immersed in the thorax up to the eyes. *Eyes* reniform, with a deep and narrow sinus. *Antennæ* arising from just in front of the sinus of the eyes, wide apart, as long as the body, filiform, 11-jointed: first joint robust, clavate; second small, obconic; third, fourth and fifth nearly of equal length, the fourth the shortest; the remainder gradually decreasing in length, the terminal one pointed. *Thorax* rounded in front, transverse, nearly as broad as the elytra. *Scutellum* subquadrate, elevated behind. *Elytra* half as long again as broad, the apices rounded. *Legs* moderate, tarsi 4-jointed; the first three joints nearly of equal length, the third joint deeply bilobed and nearly covering the small terminal joint.

This genus differs from *Mitocera*, W. W. S., in the length of the antennæ, and in the proportions which the third, fourth and fifth joints of that organ bear to each other. The species are all pale coloured.

Sp. 1. *Ochrosopsis vermicularis*, Hope, MSS.

Head slightly projecting from thorax, reddish brown, eyes black. Antennæ as long as the body, reddish brown. Thorax corneous yellow, rugose, the depressions black. Elytra and scutellum corneous yellow, the former closely covered with large black impressions, which arrange themselves into irregular striæ. Under side of body reddish brown, covered with short silky pubescence. Legs light rufous brown.

Length $\frac{30}{100}$ inch.
From New Holland.
In the Cabinet of the Rev. F. W. Hope.

Sp. 2. *Ochrosopsis Australis*, Hope, MSS., type. (Pl. IX. fig. 6.)

Head ochraceous yellow. Eyes black. Antennæ about as long as the body, dusky brown. Thorax shining, reddish brown, with a longitudinal band on the vertex and two very faint oblique bands from the centre of the base towards the anterior angles corneous yellow, covered with large black impressions, which approximate towards the vertex. Scutellum dark shining brown. Elytra corneous yellow, covered with large closely set irregular impressions, dark brown or black, varying in different specimens, the impressions approximating round the scutellum and at the base of the elytra. Under side of body shining pale ochraceous yellow, sparingly covered with short pubescence. Legs dusky, corneous yellow.

Length $\frac{25}{100}$ inch.
From the Swan River.
In the Cabinet of the Rev. F. W. Hope.

Sp. 3. *Ochrosopsis erosa*, Hope, MSS.

Head ochraceous yellow. Eyes dusky brown. Antennæ rather longer than the body, black. Thorax shining, corneous yellow, nearly covered with coarse very black impressions, which approximate on each side the vertex so as to form two almost black patches, and leave a longitudinal band along the vertex and the margins free from impressions. Scutellum black, shining. Elytra pale ochraceous yellow, deeply and irregularly punctured with black, the punctures confluent in places and forming an irregular pattern. Under side of body straw coloured, shining. Legs light reddish brown.

Length $\frac{20}{100}$ inch.

From the Swan River.

In the Cabinet of the Rev. F. W. Hope.

Sp. 4. *Ochrosopsis melanocephala*, Hope, MSS.

Head ochraceous yellow, with the vertex and a central line down the face black. Eyes black. Antennæ nearly as long as the body, black. Thorax ochraceous yellow, with a small oblong patch near the hinder angles, and a large triangular patch on each side of the vertex in front, black, deeply punctured, the punctures light brown on the lighter portions. Scutellum small, black. Elytra shining, ochraceous yellow, somewhat closely punctured, with dark brown impressions, which are occasionally confluent transversely. Under side of body straw coloured, the region of the mesosternum closely punctured with black impressions. Legs reddish brown, with the apices of the femora and tibiæ and tarsi black.

Length $\frac{20}{100}$ inch.

From New Holland.

In the Cabinet of the Rev. F. W. Hope.

Sp. 5. *Ochrosopsis subfasciata*, W. W. S.

Head yellow brown, deeply punctured, with slight longitudinal waves. Eyes and parts of the mouth dark fuscous. Antennæ dark brown. Thorax dark brown, deeply punctured, with dull yellow rugosities. Scutellum dull yellow. Elytra dull yellow, with irregular striæ deeply punctate, forming transverse rugosities, the indentations dark brown and crossed a little above the middle with an indistinct dark brown band, and another of the same nature a little above the apex. Under side of body dull yellow, punctured, and slightly covered with adpressed hairs. Legs yellow brown.

Length $\frac{25}{100}$ inch.

In the Collection of the British Museum.

Collected in New Holland by Mr. Tring.

Sp. 6. *Ochrosopsis rufescens*, W. W. S.

Head bright rufous brown, deeply punctured, with the parts of the mouth dull yellow, excepting apices of mandibles, which are black. Eyes black. Antennæ pale rufous brown. Thorax bright rufous brown, deeply punctured, narrowly margined in front and laterally with dull yellow. Scutellum black, punctured, shining, subtrigonate. Elytra with irregular striæ deeply punctate, bright rufous brown, with the rugosities yellow, excepting a little before the apex, where the rugosities being of the same colour as the indentations, there is the appearance of a broad transverse indistinct rufous brown band. Under side of body dull yellow, punctate, and covered with short adpressed hairs. Mesosternum dusky brown. Legs and tarsi dull yellow.

Length $\frac{25}{100}$ inch.

From Van Diemen's Land.

In my own Collection.

This is a rather more robust and cylindrical species than the others which I have described, with shorter and stouter antennæ.

Sp. 7. *Ochrosopsis apicalis*, W. W. S.

Head dark rufous brown, punctured, parts of the mouth paler, with tips of the mandibles dark fuscous. Eyes black. Antennæ rufous brown, not so long as the body, with the five terminal joints more robust than the four preceding. Thorax bright rufous brown, deeply punctured, with a transverse depression running along the hinder margin on the vertex; the anterior margin narrowly and obscurely margined with dull yellow, and the rugosities on the lateral margins of the same colour. Scutellum subtrigonate, rufous brown. Elytra bright rufous brown, punctured, with irregular striæ, having a small patch on each shoulder, and the apices ochraceous yellow, the punctate indentation on the latter being dark brown. Under side of body dusky brown, punctured, and covered with short adpressed somewhat silvery pubescence. Mesosternum somewhat darker. Legs and tarsi pale rufous brown.

Length $\frac{25}{100}$ inch.

From Van Diemen's Land.

In my own Collection.

XXVI. *On the Lamellicorn Beetles which possess exserted Mandibles and Labrum, and 10-jointed Antennæ. By* J. O. WESTWOOD, F.L.S., &c.

[Read 3rd October, 1842, and completed 4th May, 1843.]

THE insects which form the subject of this paper, and which possess an exserted labrum, exposed mandibles and 10-jointed antennæ, form portions of the families *Trogidæ* and *Geotrupidæ* of MacLeay.

The former of these families, in the "Horæ Entomologicæ," is distinguished from the other Saprophagous families as follows:—From the *Scarabæidæ* and *Aphodiidæ* by its exposed mandibles and labrum; from the *Dynastidæ* by its "maxillæ processubus duobus, interno dente arcuato corneo sæpius instructo; labrum distinctum subquadratum et anus obvolutus;" and from the *Geotrupidæ* by its corneous maxillæ.

The antennæ of the *Trogidæ* are described as "breves, *novem* vel decem articulis," (p. 59,) in order to admit of the introduction of the Australian genera *Cryptodus* and *Mæchidius*, (the first of which, as I have shown in previous papers read before the Entomological Society, belongs to the Phileurideous *Dynastidæ*, whilst *Mæchidius*, as also shown by me in another paper, belongs to the *Melolonthidæ*,) as well as of the very interesting European genus *Ægialia*, which, in addition to its 9-jointed antennæ, possesses a strong corneous hooked inner lobe to the maxillæ, with the outer lobe spinulo-setose.*

This last named curious genus, therefore, justifies the admission of 9-jointed antennæ into the characters of the family of the *Trogidæ* of MacLeay, namely, the genera *Trox*, *Phoberus*, and *Acanthocerus*, possessing 10-jointed antennæ. All these genera, however, possess a character in respect to these organs by which they are distinguished by Mr. MacLeay from the *Geotrupidæ*, (with which they agree in their exserted mandibles and labrum,) namely, the separation of the three joints of the club of the antennæ, whereas in the *Geotrupidæ* the two terminal joints are received into the cup-like basal joint of the club. The majority of the genera of *Geotrupidæ* possess 11-jointed antennæ; Mr. MacLeay however adds to the family the genera *Orphnus* and *Hybosorus*, which possess 10-jointed antennæ. Mr. MacLeay's description of the maxillæ of *Orphnus* is however incorrect, since in this respect, as well as in the free joints of the club of its antennæ, it belongs to the *Trogidæ*.

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* The insect figured by Guérin as the type of this genus, in the "Iconographie du Règne Animal," *Æg. cornifrons*, possesses 10-jointed antennæ, and forms the genus *Geobius*, Brullé (*Hybalus*).

In the "Règne Animal" Latreille united the *Geotrupidæ* and *Trogidæ* into his section *Arenicoli*, distinguished from the *Coprophagi* (*Scarabæidæ* and *Aphodiidæ*, MacLeay) by the exserted mandibles and labrum, and the distinct terminal point of the labial palpi; and from the *Xylophili* (*Dynastidæ* and *Rutelidæ*) by the elytra covering the extremity of the abdomen and the exposed labrum, &c. He however divides the *Arenicoli* into two groups, *Geotrupides* and *Trogides*, which do not however precisely agree with MacLeay's two families; the *Geotrupides* being characterized by having the two lobes of the labium distinct and exserted, and the antennæ generally 11-jointed; whilst the *Trogides* are described as having 10-jointed antennæ, the labium entirely concealed beneath the mentum, and the maxillæ dentated on the inner edge. I have not however found Latreille's primary character of these two groups of so much importance as he gives to them; because, as the lobes of the labium are membranous and retractile, they shrink in drying, and thus often become concealed when they would be exserted while living; moreover they are often exserted but hidden beneath the scapes of the labial palpi.

Latreille divides his *Geotrupides* into three sub-sections.

1. Those with 9-jointed antennæ; namely, the genera *Ægialia* (which has been already noticed above as more strictly referable to the *Trogidæ* on account of its maxillæ and distinct joints of the club of the antennæ) and *Chiron*, MacLeay—a most interesting genus placed by its founder in the family *Lucanidæ*, but which Latreille, with greater acumen, introduces near to *Ægialia*. Mr. MacLeay, indeed, admits that he did not examine the maxillæ of this genus; but the strongly exserted dentate labrum and minute scutellum are sufficient to create suspicion of its Lucanideous relationship, whilst the maxillæ are very similar to those of *Orphnus* and *Ochodæus*.

2. Those with 11-jointed antennæ, including *Lethrus*, *Geotrupes*, *Athyreus*, *Elephastomus*, *Bolboceras*. To these Latreille adds *Ochodæus*; but that genus, although various recent French authors have described it as having 11-jointed antennæ (apparently from Latreille having introduced it into this group rather than ex visu proprio), in reality possesses ten joints to its antennæ, and, as above mentioned, is very close in its relationship to *Orphnus*.

3. Those with 10-jointed antennæ, namely, *Hybosorus* and

Acanthocerus; the first of which has a Geotrupideous and the second a Trogideous clava to its antennæ, the first also has Geotrupideous and the latter rather Trogideous maxillæ and labium.

The *Trogides* consist, according to Latreille, of the genus *Trox* alone, with *Phoberus* as a subdivision.*

The genus *Orphnus*, which MacLeay places in the family *Geotrupidæ*, is introduced by Latreille into the *Dynastidæ*, and is stated not to differ from *Oryctes*. This relationship will be examined in a subsequent part of this paper.

With these preliminary remarks on the relationship of these insects, I now proceed to the description of the various genera which possess 10-jointed antennæ, and which respectively belong to the families *Geotrupidæ* or *Trogidæ* as thus characterized.

	GEOTRUPIDÆ.	TROGIDÆ.
Antennarum clava	articulo basali infundibuliformi	articulis liberis.
Maxillarum lobis	membranaceis	potius corneis, supero ciliato-dentato.
Labii lobis	plerumque porrectis	plerumque retractis.

GEOTRUPIDÆ.

Antennarum clava articulo basali infundibuliformi; maxillarum lobi membranacei; labium lobis plerumque porrectis.

- Antennæ 11-articulatæ .... *Geotrupes, &c.*
- Antennæ 10-articulatæ.
  - Prothorax integer.
    - Tibiæ anticæ 3-dentatæ.
      - Mandibulæ uncinatæ .... *Hybosorus.*
      - Mandibulæ latiores.
        - Ungues bifidi.
          - Tibiæ posticæ in medio inermes .... *Silphodes.*
          - Tibiæ posticæ in medio dentatæ .... *Coilodes.*
        - Ungues simplices .... *Chætodus.*
    - Tibiæ anticæ 2-dentatæ .... *Apalonychus.*
  - Prothorax canaliculatus .... *Anaides.*

TROGIDÆ.

Antennarum clava articulis liberis; maxillarum lobi cornei, externo ciliato-dentato; labium lobis plerumque retractis.

- Antennæ 9-articulatæ.
  - Corpus breve latum .... *Ægialia.*
  - Corpus longum parallelum .... *Chiron.*

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* *Cryptodus* and *Mæchidius* are however mentioned in a note, not having been seen by Latreille; he however considers them as removed from *Trox*, and regards *Mæchidius* as allied to *Melolonthus*.

Antennæ 10-articulatæ.
Corpus supra planum; mentum profundè incisum ..*Cryptogenius.*
Corpus plus minusve convexum; mentum haud profundè incisum.
Caput sub pectus haud contractile; corpus haud globosum.
Pedes mediocres, tarsis gracilibus.
Prothorax maximus, anticè subbituberculatus..*Geobius.*
Prothorax mediocris, haud anticè subbituberculatus.
Prothorax anticè plus minusve retusus, dorso irregulari; caput sæpius cornutum in ♂; maxillarum lobus internus denticulatus.
Mandibulis 4-dentatis ....*Triodontus.*
Mandibulis 3-dentatis ....*Orphnus.*
Mandibulis 2-dentatis ....*Ægidium.*
Prothorax et caput simplicia; maxillarum lobus internus in spinam curvatam productus...................... } *Ochodæus.*
Pedes abbreviati, tarsis crassis ....*Trox, Phoberus.*
Caput sub pectus contractile; corpus globosum ..*Acanthocerus;* and the subgenera separated from it by Germar, in Zeitschrift f. d. Ent.

Fam. GEOTRUPIDÆ.

HYBOSORUS, MacLeay.

(Plate XI. fig. 1 and details.)

This genus is at once distinguished by its sickle-shaped mandibles, a remarkable character, which neither MacLeay nor Guérin have represented in their figures illustrative of this genus. The labrum is entirely exposed and has its sides serrated, another peculiar character not noticed by MacLeay, whose description of the inner lobe of the maxillæ ("lacinia interna subcrustacea intus ad apicem unidentata") is also incorrect, as I have, on repeated dissection, observed both lobes to be equally membranous and destitute of teeth. The labial palpi arise from large scapes, which MacLeay has mistaken for the anterior margin of the mentum; and instead of the ligula or labium being, as he says, "vix distincta," its two lobes are porrected beyond the basal joint of the palpi. Guérin also has neither represented the scapes to the labial palpi nor the lobes of the labium. The ungues are simple in all the feet.

The species are confined to the old world.

Sp. 1. *Hybosorus arator*, Fabr., MacL. (*oblongus*, Dahl.)
Habitat Europa Australi (Hispania, Gall. mer.)
Long. corp. lin. 4.
Note: *H. arator*, Lap. Hist. Nat. Ins. Col. vol. ii. p. 108

Senegallia; long. 3 lin.: Obscurè brunneus, tibiis anticis bidentatis. Species distincta?

Sp. 2. *Hybosorus latipes*, Germar, Perty, Ind.?

Sp. 3. *Hybosorus orientalis*, Hope, MSS.

Niger, nitidus, clypeo punctatissimo marginato, thorace tenue punctato, elytris striato-punctatis, tibiis anticis 3-dentatis.
Long. corp. lin. 6.
Habitat in India orientali.

Sp. 4. *Hybosorus Roei.*

Individua minora Indica, ex India orientali D. Roe missa ad Dom. Hope; elytra et thoracem colore piceo tincta, lineasque 4 long. habent. Vix tamen species distincta.

Sp. 5. *Hybosorus Laportei.*

Syn. *H. arator*, Lap. op. cit. supra.
Habitat Senegallia.

Sp. 6? *Hybosorus nitidulus*, Duf. Coll.? Lap. op. cit. p. 108.

"Brun rougeâtre, elytres *irregulièrement* ponctuées sur le disque, jambes antérieures fortement 3-dentées."
Long. lin. 3, larg. 1¼.
Habitat Senegallia.
Obs.—Dejean gives this MS. species of Dufour as an *Orphnus.*

Sp. 7. *Hybosorus thoracicus*, Hope, MSS.

Oblongo-ovalis, piceo-rufus, thorace rufo; nitidus, capite thoraceque sublente tenue punctatis, elytris striato-punctatis, antennis luteis, tibiis anticis bidentatis.
Long. corp. lin. 3½.
Habitat in Senegallia.
Mus. Hope, Melly.
Obs.—Color variat plus minusve piceus. Individua alia, nomine *H. oblongus* inscripta, in Mus. D. Melly vidi, sed haud distincta.

Sp. 8. *Hybosorus pinguis*, Westw.

Latior, piceo-niger, elytris nigris, clypeo punctato, thorace sublævi, elytris striato-punctatis, pedibus piceis, brunneo-setosis, antennis fulvis, tibiis anticis 3-dentatis.
Long. corp. lin. 3, 4.
Habitat in Sierra Leone.
Mus. Hope, Melly. Alius duplo minor ex Africa in Mus. Melly haud differre videtur.

SILPHODES, Westw.

(Plate XI. fig. 2 and details.)

Corpus ovatum, subconvexum, marginibus reflexis et setosis. *Caput* subtrigonum, margine laterali parum reflexo et ante oculos longè setoso. *Clypeus* fere rectè truncatus. *Labrum* porrectum, breve transversum, angulis anticis rotundatis, margineque antico in medio emarginato. *Mandibulæ* robustæ corneæ, exsertæ, margine externo valde rotundato et setoso, apice in dentem declivem producto, denteque altero minuto interno; margine interno setuloso. *Maxillæ* basi corneæ, extus setoso; lobo apicali magno membranaceo setoso, interno minuto ciliato, ciliis duabus crassioribus apicalibus. *Palpi* maxillares 4-articulati; articulo 1mo minuto, reliquis tribus longioribus, ultimo longo, parum curvato. *Mentum* fere rotundatum, longè setosum, margine antico emarginato. *Labium* laciniis duabus tenuibus productis. *Palpi* labiales breves, 3-articulati. *Antennæ* 10-articulatæ, clava 3-articulatæ; articulis infundibuliformibus, 1mo majori alteros duos recipiente. *Prothorax* transversus, posticè latior, anticè emarginatus, angulis posticis rotundatis, margine postico parum producto; lateribus reflexo-marginatis. *Scutellum* triangulare. *Elytra* ovalia, abdomen omnino tegentia, convexa, margine reflexo et ciliato. *Pedes* longitudine mediocres, tarsis posticis longioribus. *Tibiæ* 2 anticæ extus obtusè serratæ, dentibus tribus majoribus ad apicem et calcari unico armatæ. *Tibiæ* 4 posticæ angustiores, setis longissimis triplici serie positis. *Tarsi* 5-articulati; antici breves, articulo ultimo subtus spinulis armati. *Ungues* pedum anticorum dissimiles, majori intus ad basin spina brevi alteraque versus medium armato; minori fere recto, basi tamen valde curvato. *Ungues* pedum 4 posticorum fere similes, fere recti, ad basin tamen curvati.

The porrected labrum and mandibles, membranous lobes of the maxillæ and infundibuliform joints of the club of the antennæ, lead me to infer that this insect is much more nearly allied to the *Geotrupidæ* than to the *Trogidæ*, from which these characters especially remove it.[*] Its immediate relationship is *Hybosorus*, from which it is distinguished by the form of the mandibles, and

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[*] A specimen of this genus, in the Cabinet of the Zoological Society, has a label attached to it in the handwriting of Mr. MacLeay, inscribed "*Trogidæ*, G. N." Had Mr. MacLeay however had an opportunity of examining the trophi of the genus, I am convinced he would have referred it to *Geotrupidæ*.

more especially by the dissimilarity in the form of the ungues, which is indeed a character which we meet with only amongst the *Melolonthidæ* and other Thalerophagous groups.

The genus bears a striking analogy to some of the species of the genera *Silpha* (*S. lævigata*) and *Necrophilus* (*N. hydrophiloides*, Esch.), not only in size but also in general appearance. This is the more interesting, because, from a label in the handwriting of Sir S. Raffles, attached to a specimen from Sumatra, (in the Zoological Society's Museum,) we learn that the species "feeds on dead animal matter. May, 1818." The construction of the trophi would certainly not have led to the idea of such a habit, the peculiar form of the mandibles and the membranous lobes of the maxillæ not appearing fit for such a mode of life.

The genus is probably confined to the sea coast, like *Ægialia* and the *Psammodii.*

Sp. 1. *Silphodes Indica*, Westw.

S. castaneo-fusca, lateribus rufescentibus, elytris striato-punctatis, mediocriter setoso-marginatis, tibiis anticis extus (et inter dentes) serratis, tarsis anticis simplicibus.
Long. corp. lin. 5⅓.
Habitat in India Orientali.
In Mus. D. Melly.

Magnitudine quasi intermedia inter *S. Sumatrensem* et *Philippinensem,* illâ e tertia parte major, et magis glabrâ, hâc minor et angustior. Caput lateribus parum elevatis, clypeo ferrugineo punctato. Prothorax marginatus, tenuissimè punctatus, punctis lateralibus majoribus. Elytra regulariter striato-punctata, punctis haud profundis. Tibiæ anticæ extus (et inter dentes) serratæ. Tarsi antici et ungues simplices: an ♀ ?

Sp. 2. *Silphodes Madagascariensis*, Westw.

Piceo-castanea, lateribus pedibusque magis rufescentibus, capite anticè latiori, elytris minus ovatis, punctatis, punctis majoribus striisque tribus lævibus punctis utrinque marginatis, lateribus longius setosis.
Long. corp. lin. 5¾.
Habitat Madagascar.
In Mus. D. Melly.

Magnitudo fere *S. Gambiensis* at angustior, elytris et pedibus longius setosis, capite anticè magis quadrato, pone antennas magis rotundato, elytrorum punctis profundioribus striisque tribus lævi-

bus, singula striæ utrinque linea punctorum marginata. Tibiæ anticæ externè (et inter dentes) serratæ, unguibus (♂?) basi valde curvatis equalibus, uno dente in medio armato.

Sp. 3. *Silphodes dubia*, W.

Nigricans, lateribus vix setosis, prothorace lævi, elytris sub lente irregulariter punctatis, lineis tribus lævibus in singulo punctis utrinque marginatis, tibiis anticis externè (et inter dentes) serratis.

Long. corp. lin. 4½.
Habitat —— ?
In Mus. D. Hope.

S. Sumatrensi paulo major, et magis convexa; elytris, oculo nudo, lævibus, sed sub lente tenuissimè et irregulariter punctatis, striis tribus lævibus in singulo, stria singula utrinque punctis marginatâ. Tarsi antici et ungues simplices.

Sp. 4. *Silphodes Sumatrensis*, W.

S. piceo-castanea, capite latiori, elytris striato-punctatis, margine longe setoso, tibiis anticis extus serratis, inter dentes integris.

Long. corp. lin. 3½.
Habitat in Sumatra. D. Raffles.
In Mus. Soc. Zool. Lond.

Hæc species e cæteris differt statura minori, prothoracis lateribus magis parallelis, capite et parte antica prothoracis latioribus, elytrisque magis convexis. Caput tenuissimè punctatum, inter oculos læve. Prothorax magis nitidus convexior punctatissimus, lateribus punctis majoribus marginatis. Elytra marginata ovalia convexa, minus dilatata, singulo striis circiter 18 equalibus e punctis impressis formatis. Setæ marginis elytrorum elongatæ. Pedes longiores et tenuiores. Tibiæ anticæ extus serratæ, spatiis inter dentes haud serratis.

It is this species which was observed by Sir S. Raffles to "feed on dead animal matter."

Mr. Hope has a specimen of this genus, which differs only from Sir S. Raffles' individual in being slightly larger, in being rather paler in colour, and in the striæ of the elytra not being quite so regularly or so deeply punctured; received with the erroneous name *Euparia castanea*, No. 83.

Sp. 5. *Silphodes Philippinensis*, W. (Pl. XI. fig. 2.)

S. piceo-castanea, capite thoraceque magis rufescentibus, elytris longitudinalibus (per paria dispositis) e punctis confluentibus formatis.

Long. corp. lin. 4½—6.

Habitat in insulis Philippinensibus. D. Cuming.

E præcedenti differt statura majori latiori, minus convexa, capite et parte antica prothoracis angustioribus, angulisque posticis hujus minus marginatis. Caput et prothorax tenuissimè punctata, hujus lateribus punctis majoribus. Setæ marginis elytrorum et pedum elongatæ. Tibiæ anticæ extus serratæ, spatiis inter dentes apicales etiam serratis.

Sp. 6. *Silphodes Gambiensis*, Westw.

S. castaneo-fuscus, prothoracis et elytrorum marginibus suturaque rufescentibus, elytris sub lente tenuissimè punctatis, striisque tribus e punctis majoribus in singulo. Long. corp. lin. 6.

Habitat apud ripos fluviorum Gambiæ et Senegalliæ. D. Tebbs. In Mus. Britann.

E *S. Philippinensi* differt capite angustiori, thorace minus punctato, elytris magis ovatis, setis marginalibus multo brevioribus, punctis disci irregularibus et minutis, lineis tribus in singulo e punctis majoribus formatis; ungues pedum anticorum æquales, parum curvati, uno in medio dentato.

Obs.—There is a genus indicated in Dejean's catalogue, between *Hybosorus* and *Ochodæus*, under the name of *Acallus*, (*Atimus*, Dej. Cat. 3rd edit.,) composed of three species; *emarginatus*, Wiedemann [Wiedemann has described no species under such name], from Java, *affinis*, Dej., and *ciliatus*, Dej., both from Senegal. This genus is evidently identical with *Phæochrus* of Laporte, (Hist. Nat. Ins. Col. vol. ii. p. 108,) placed between *Geobius* and *Acanthocerus*, and composed of two species, *P. Senegallensis* and *P. emarginatus* (from Java). From the very short and slovenly description given of this genus, it is impossible to say whether it be identical with *Silphodes* or not.

Coilodes, Westw. (κοιλότης, convexitas).

(Pl. XI. fig. 3, and details.)

Corpus breve, valde convexum, posticè rotundatum. *Antennæ* 10-articulatæ, clava rotundata, articulo 8vo magno infundibuliformi. *Labrum* porrectum, transversum, angulis anticis rotundatis, margine antico setoso, setis e punctorum serie productis. *Mandibulæ* elongato-trigonæ, extus curvatæ, apice acutæ, margine interno emarginato setoso, basi internè inciso. *Maxillæ* lobis membranaceis setosis. *Mentum* quadratum, lateribus rotundis. *Palpi* labiales breves, 3-articulati, in scapos crassos insidertes. *Labium* lobis duobus membranaceis ad basin articuli 2di palporum labialium productis. *Tibiæ* anticæ extus serratæ et 3-dentatæ. *Pronotum* in ♂ anticè excavatum, in ♀ vero integrum. *Ungues* tarsorum in ♂ intus in medio unidentati, in ♀ simplices. (Insecta Americana.)

The above characters will sufficiently characterize a small group of South American insects closely allied to and apparently representing the old world *Hybosori*, with which, in various respects, it is true that they structurally agree; but the form of the mandibles, and the sexual differences exhibited by the prothorax and ungues, will, I think, sufficiently distinguish them from that group. The type of the present genus is—

Sp. 1. *Hybosorus gibbus*, Perty, (Mart. and Spix, Del. An. Art. Bras. pl. 9, fig. 5).

(Pl. XI. fig. 3.)

Syn. *Hyb. Brasiliensis*, Laporte, H. d. Ins. Col. ii. p. 108.
Hyb. geminatus, Dej. Cat. ined.

Brevis, convexus, supra niger, nitidus; elytris marginatis, sub lente geminato-punctato-striatis; thorace ♂ anticè rotundato excavato, margine antico in medio tuberculo instructo; capitis fronte carina media transversa seu potius tuberculis duobus conjunctis, transversè positis.

Long. corp. lin. 3.

Habitat in Brasilia. In Mus. Hope, Melly, nostr.

Variat mas colore omnino luteo-fulvus. Habitat in Brasilia. Mus. Melly.

Sp. 2. *Coilodes Chilensis*, W.

C. piceus, thorace maris rufo-piceo, excavatione magna antica, margineque antico in medio tuberculo prominenti.

Long. corp. lin. 3½.

Habitat in Chili.

In Mus. Soc. Ent. Lond.

Præcedenti paullo major, magis piceus vel rufo-piceus, thorace magis impresso in parte magis antica. Aliter simillimus.

Sp. 3. *Coilodes castaneus*, W.

C. piceo-castaneus, nitidus, thorace maris parum excavato, elytris vix geminato-striato-punctatis, pedibus brunneis.
Long. corp. 2$\frac{3}{4}$. *C. gibbo* valde affinis.
Habitat in Colombia.
In Mus. D. Melly (*Hybosorus castaneus*, Buq. MSS.)

Sp. 4. *Coilodes parvulus*, W.

C. luteo-brunneus, nitidus, elytris profundius geminato-striato-punctatis ♀.
Long. corp. lin. 2$\frac{1}{8}$.
Habitat in Brasilia. In Mus. Melly.
Species 4 præcedentes forsitan varietates sp. ejusdem existimari debent.

From their geographical habitat I presume the following species belong to this genus:—

Hybosorus rufulus, Laporte, op. cit. p. 108.
Habitat in Insula St. Doming.
Hybosorus humeralis, Mann.
Habitat in Brasilia.
Hybosorus auger, Mann.
Habitat in Brasilia.
Hybosorus discus, Dej. Cat. ined.
Habitat Buenos Ayres, Brasilia.
Hybosorus granarius, Dej. Cat. ined.
Habitat in Brasilia.
Hybosorus testaceus, Dej. Cat. ined.
Habitat in Carthagena.
Hybosorus minutus, Buq., Dej. Cat. 3rd edit. ined.
Habitat Cayenne.

CHÆTODUS, Westw.

(Pl. XI. fig. 4, and details.)

Corpus oblongo-ovatum convexum, superficie setosa. *Caput* parvum, anticè triangulare, clypei apice rotundato. *Labrum* porrectum, latior quam longus, margine antico recto, angulis rotundatis. *Mandibulæ* conicæ crassæ subtrigonæ, extus rotundatæ, apice curvato et intus oblique truncato, membranaque setosa interna instructæ. *Maxillæ* lobo externo subovato membranaceo setoso, interno minuto subcorneo, apice stylis duobus brevibus instructo. *Palpi* maxillares subbreves, articulo 1mo brevissimo, 2ndo crasso, 3tio parum breviori, tertio longiori attenuato. *Mentum* cordatum, basi truncatum. *Palpi* labiales minuti, scapo basali haud conspicuo. *Labium* e lobis duobus sub palpos conspicuis constans. *Antennæ* 10 articulatæ, clava rotunda, articulo 8vo infundibuliformi. *Pronotum* integrum, posticè fere latitudine elytrorum. *Elytra* magna convexa, striata et setosa. *Tibiæ* anticæ 3-dentatæ, posticæ 4 in medio haud dentatæ. *Ungues* simplices. (Insecta Americæ meridionali propria.)

Sp. 1. *Chætodus piceus*, Westw. (Pl. XI. fig. 4.)

C. piceus, nitidus, capite thoraceque rudè punctatis, elytris regulariter striatis, luteo-setosis, pedibus valde setosis, antennarum clava lutea.

Long. corp. lin. 3.
Habitat in Brasilia, D. Swainson.
In Mus. Soc. Zool. Lond.

Caput clypeo rotundato, tenue marginato, hoc et pronotum vagè et rudè punctatis, lateribus marginatis et setulosis. Elytra striata, singulo striis 12 simplicibus æque distantibus et setosis. Pedes mediocres, tibiis anticis serrulatis, apice tridentatis.

Sp. 2. *Chætodus irregularis*, Westw. (Plate XI. fig. 4*f*.)

C. piceus, nitidus, capite thoraceque grossè punctatis, elytris irregulariter striatis, antennarum clava obscuriore.

Long. corp. 2½.
Habitat in Brasilia. In Mus. D. Melly.

Clypeus rufescens, tenue marginatus punctatus. Pronotum irregulariter et grossè punctatum, lateribus subserratis et setosis. Elytra striata, striis simplicibus, singulo striis 10; 1ma suturali, 2da et 3tia, 4a et 5tia approximatis, reliquis externis æque distantibus, punctis perpaucis ad margines striarum intermediarum. Pedes mediocres, tibiis anticis 3-dentatis.

The mandibles in this species have the outside near the base more gibbous, and the apex not so obliquely truncate within; the antennæ have the intermediate joints acutely produced within, the points being directed backwards; the maxillæ and mentum agree with those of the preceding species, but the lobes of the labium are more porrected.

Sp. 3. *Chætodus? basalis*, Westw.

C.? piceus, nitidus, elytris basi rufis, punctato-striatis, pedibus elongatis gracilibus.

Long. corp. lin. 2.
Habitat in Cayenna

Caput deest. Thorax tenue punctatus. Elytra striato-punctata, singulo circiter seriebus 12 punctorum impressorum, lateralibus magis irregularibus. Pedes longi graciles, tibiis anticis externè subserratis, apice 3-dentatis, dente interno minuto, tibiis intermediis et posticis in medio haud dentatis setosis, tarsis elongatis gracilibus, unguibus curvatis integris.

ANAIDES, *Westw.*

(Pl. XI. fig. 6, and details.)

Corpus supra planum, rugosum, setosum; thorace in medio longitudinaliter carinato, parte antica angustiore. *Caput* mediocre, subovale, anticè angustius, marginibus clypei parum elevatis, rugosis. *Labrum* exsertum, transversum, anticè margine setoso. *Mandibulæ* elongatæ, versus apicem curvatæ, acutæ, edentatæ, margine interno membrana instructo. *Maxillæ* elongatæ, lobo apicali longo setoso, edentato, apice parum latiori; lobo interno longo, gracili parum setoso, apice supero in dentem parvum corneum terminato. *Palpi maxillares* longitudine mediocres, articulo 1mo minuto, 2do et 3tio subæqualibus, 4to longiori elongato-ovali. *Mentum* oblongum, lateribus parum extus arcuatis, longè ciliatum. *Labium* e lobis duobus membranaceis distinctis, ponè palpos porrectis, constans. *Palpi labiales* breves, 3-articulati, articulo 3tio parum longiori. *Antennæ* 10-articulatæ, 1mo curvato, apice vix crassiori setoso, 3bus ultimis distinctis, clavam formantibus, 8vo majori. *Prothorax* transversus, lateribus arcuatis, antice angustior, (capite tamen latior,) et posticè elytrorum basi parum angustior, angulis posticis subacutis, dorso in medio longitudinaliter canaliculato. *Elytra* thorace latiora, pone humeros parum dilatata, podicem occultantia, lineâ elevatâ in utroque, ex angulo humerali fere ad apicem, et cum latere parallela, ductâ. *Pedes* longitudine mediocres. *Tibiæ* extus serratæ, intus setosæ, anticæ dentibus tribus extus versus apicem armatæ. *Tarsi* et ungues simplices.

This is a singular genus, which seems to partake of the characters of the *Trogidæ* and *Geotrupidæ* almost in an equal degree. In general appearance it has almost the appearance of a small *Trox*, but is more flattened on the back, which is increased by the two lateral carinæ of the elytra. The antennæ are also 10-jointed, whereas they are 11-jointed in the majority of the *Geotrupidæ*. The labium has its two lobes exposed beyond the extremity of the mentum.

The mandibles are destitute of the cavity filled with membrane on the inside as in *Trox*, the membrane in fact being present, but extending along the inside of the jaws. The maxillæ also more nearly resemble those of *Geotrupes* than *Trox*. The toothing of the tibiæ is quite unlike either *Trox* or *Geotrupes*, and resembles *Cryptogenius*, with which it also agrees in various other respects; as the structure of the mandibles, the lateral carinæ of the elytra, colour, texture, sculpture, geographical distribution, &c.

Anaides fossulatus, Westw. (Pl. XI. fig. 6.)

Nigro-fuscus, subnitidus, punctulatus, setosus; antennarum clava pallidiori, prothorace in medio fossula longitudinali.

Long. corp. lin. 3½.

Habitat in America meridionali. In Mus. D. Hope.

Caput subtriangulare, angulo antico rotundato, marginibus serrulatis, punctatum. Prothorax variolosus setosus, setis e medio impressionum subrotundarum irregularium productis, carinis duabus longitudinalibus parallelis, spatio angusto intermedio parum excavato; lateribus subrotundatis, obtusè serrulatis. Elytra læviter striata, singulo striis 8 e punctis impressis ovalibus, connexis; et inter has strias linea fere recta, punctisque remotioribus subrotundis setigeris; inter humeros et scutellum carina parva et abbreviata, carinaque altera e humero fere ad apicem utriusque elytri extensa. Tibiæ anticæ ad apicem externè dentibus tribus acutis armatæ, reliquæ serratæ et setosæ.

Obs.—M. Guérin-Meneville possesses an undescribed insect, which appeared to me, on a casual examination, to belong to the present genus, which I learn is Dejean's Catal. genus *Adelops*.

APALONYCHUS, West., (*ἀπαλῶν ὀνύχον*).

(Pl. XI. fig. 5, and details.)

Corpus oblongo-ovatum, convexum. *Caput* mediocre, clypeo lato, anticè truncato. *Labrum* semicirculare, porrectum. *Mandibulæ* corneæ, porrectæ, extus valde curvatæ, apice oblique emarginato, intus ad basin incisæ. *Maxillæ* lobis duobus minutis, externo membranaceo integro setoso, interno minimo subcorneo, apice stylifero. *Palpi maxillares* elongati graciles. *Mentum* elongato-crateriforme, longe setosum. *Palpi* sublongi, 3-articulati, articulo ultimo longiori, in scapos duos breves latos insidentes. *Labium* inconspicuum. *Antennæ* longiores quam in præcedentibus, 10-articulatæ, articulis tribus clavæ laxis intus elongato-productis, articulo 8vo majori, 9no curvato. *Prothorax* simplex. *Pedes* sublongi, tibiæ anticæ extus serrulatæ apiceque bidentatæ. *Tibiæ* 4 posticæ in medio inermes. *Ungues* pedum omnium in medio dente parvo acuto armati.

The type of this group completely proves the impossibility of limiting one family group in extensive tribes of insects by fixed characters, the curious structure of the antennæ, and the inner lobe of the maxillæ, materially receding from the Geotrupideous type; the arched exposed mandibles and labrum, curved mandibles, and toothed tarsal ungues, however, prove its near approximation to some of the preceding groups. The enlarged size of the first joint of the club of the antennæ appears rather Geotrupideous, whilst the concealed lobes of the labium are more Trogideous. The entire habit of the insect is, however, much more like some of the *Geotrupidæ* with 11-jointed antennæ than *Trox*.

Apalonychus Waterhousii, Westw. (Pl. XI. fig. 5.)

A. fulvo-castaneus, nitidus, lævis; antennarum clava lutea, elytris tenue et irregulariter punctato-striatis, lateribus longe setosis. Long. corp. lin. 4.

Habitat in Insula Cuba.

In Mus. D. Waterhouse; [et nunc etiam nostro, sub nomine *Trichops helvolus*. D. Erichsonio amicissime transmissus.]

Caput parte antica depressa; clypei lateribus parum marginatis. Caput et pronotum vage punctata, punctis minutis. Elytra punctatissima, punctis in strias numerosas parum regulares dispositis. Elytra et pronotum tenue marginata, pedes concolores, longe setosi. Calcaria pedum posticorum breviores.

Fam. TROGIDÆ.

Cryptogenius, Westw.

(Pl. XII. fig. 1, and details.)

Corpus supra planum, rugosum, setosum, thorace subrotundato, elytris angustiori, pedibus longis. *Caput* suborbiculatum, margine antico tuberculato, clypeo infero magno, antice truncato. *Labrum* magnum, crustaceum, transversum, angulis anticis rotundatis, medio marginis antici parum acuminato.

Hoc labrum (insecto quiescente) spatium inter clypeum et pedes anticos occupat, reliquis partibus oris omnino absconditis. *Mandibulæ* magnæ corneæ, extus curvatæ apice acutæ, margine interno tenui, tenuissime ciliato. *Maxillæ* basi corneæ, lobo apicali maximo membranaceo ciliato, lobo interno parvo membranaceo ciliato. *Palpi maxillares* breves, crassi, 4-articulati: articulo 1mo brevissimo; 2do et 3tio brevibus, crassis; 4to majori, ovato, apice attenuato. *Mentum* maximum, corneum, fere in duas partes incisione magna setosa marginis antici divisum. *Palpi labiales* breves, 3-articulati, articulis duobus basalibus brevibus, ultimo longiori-ovato. *Labium* membranaceum, e lobis duobus longissimè setosum formatum. *Antennæ* 10-articulatæ, articulo 1mo magno lato, angulo antico internè producto, articulis 3-7 sensim crassioribus. *Clava* 3-articulata, brevis, crassa, articulis distinctis. *Prothorax* fere rotundatus, supra depressus, margine antico emarginato lineaque transversa elevata cum illo proxima et parallela; lateribus tuberculatis et posticè angustatis, margineque postico in medio parum producto. *Scutellum* triangulare. *Prosternum* subacuminatum. *Elytra* thorace latiora, supra fere plana, anum tegentia, singulo seriebus 4 longitudinalibus tuberculorum costas totidem fere formantibus. *Pedes* elongati, tibiis subangustis, tuberculato-serratis; antici dentibus tribus majoribus ad apicem externè armatis. *Calcaria* pedum 4 posticorum brevissima. *Ungues* simplices. *Color* obscurus.

This most singularly formed *Lamellicorn* appears to me to be more nearly allied to the *Trogidæ* than to the *Geotrupidæ*, or any other family, although in several respects it differs from every known group. In its dull colour and tuberculated setose appearance, the large size of the exserted labrum, horny mandibles, 10-jointed antennæ, with the joints of the club free, and concealed labium, it agrees with the *Trogidæ;* but in its depressed form, concealed mouth (shutting in with the base of the fore legs), elongated feet, notched anterior tibiæ, membranous lobes of the maxillæ, mandibles not toothed and unfurnished with a membranous notch on the inner margin, and singularly formed mentum, it differs from the characters of that family. The points of agreement appear to me to be of greater value than those in which the genus differs from that family. If, on the other hand, we regard the membranous labrum and mandibles as the typical character of the *Aphodiidæ* and *Scarabæidæ*, it differs at once from those two families; whilst the distinctly free jointed clava of the 10-jointed

antennæ, depressed body, and concealed labium, remove it from the *Geotrupidæ*, with which it however agrees in several important characters, such as the membranous lobes to the maxillæ, notched fore tibiæ, horny mandibles, with the upper edge ciliated. The large exposed labrum also at once removes it from the *Dynastidæ*,

Cryptogenius Miersianus, W. (Pl. XII. fig. 1.)

Nigricans, subnitidus, luteo-setosus; capite thoraceque circulis concentricis confluentibus sculpturatis; elytris striis numerosis tenue impressis irregularibus, spatio inter strias impressionibus ovalibus confluentibus, singulo tuberculis triplici serie ordinatis, costaque elevata laterali. Long. corp. lin. 3½.

Habitat in Nova Grenada. In Mus. D. Miers et Hope.

D. Miers, Entomologus necnon Botanicus peritissimus, copiam ditissimam insectorum Americæ meridionalis collegit, multasque species singulares mecum benevolissime communicavit.

GEOBIUS, Brullé, Exped. Sci. de Morée; Laporte, in Hist. Nat. ins. Col.

(*Hybalus*, Dejean, Catalogue, *Ægialia* pars Guérin, Icon. R. An.)

(Pl. XII. fig. 2 *a*—2 *c*, and details.)

This genus possesses a strong relationship with *Ægialia*, not only in its short broad outline, but also in the dentated mandibles and structure of the maxillæ; the antennæ are, however, 10-jointed, with a short basal joint, and the head cornuted in the males. Like *Cryptogenius* it possesses free joints in the clava of the antennæ, the first of the club being however larger than either of the others;* hence, as well as from the denticulation of the mandibles and structure of the maxillæ, and but slightly exposed labial lobes, this genus must rank in the family *Trogidæ*.

The upper lip is transverse, with the front margin strongly setose, and the angles rounded off.

The mandibles have their lateral edges exposed, being thin, and dilated outwards, the right hand mandible being slightly bifid at the tip, whilst the left hand one has an acute apical tooth, and another stronger and more acute below the apex within; both have a broad bidentate tooth in the middle of the inner margin, below which is a deep notch.

The maxillæ have the upper lobe triangular, the point directed inwards over the inner lobe; its upper edge is furnished with several strong curved spinulose setæ, two of which are much stronger than the others. The inner lobe is produced into a rather long bifid horny point. The maxillary palpi are of moderate length, with the terminal joint cylindric-ovate.

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* The club of the antennæ is incorrectly described by Laporte as infundibuliform.

The mentum is somewhat oblong, and rather narrowed in front. The lobes of the labium are slightly visible behind the base of the palpi, which have the middle joint angulated beyond the middle, and strongly setose.

The anterior tibiæ are rather broad, without serrations along the margin, and with three obtuse teeth; the middle and hind tibiæ are denticulato-setose in the middle; the calcariæ of the four hind feet are long, and the ungues are simple.

The male, in addition to the upright horn at the front of the head, is distinguished by having the front of the thorax rather retuse, and furnished with two small tubercles.

Sp. 1. *Geobius Dorcas.*
Copris Dorcas, Fabr.* Ent. Syst. Suppl. p. 31; Syst. Eleuth. i. p. 44; Germar in Silb. Rev. Ent. vol. iv. p. 112; Guérin, Icon. R. An. Ins. texte, p. 81 (*Ægialia Dorcas*), pl. 22, fig. 1. (*Ægialia cornifrons.*)
Ægialia cornifrons, Dejean olim.
Geobius cornifrons, Brullé, Exped. Sc. de Morée, Ins. p. 173; Laporte, Ins. Col. vol. ii. p. 108.
Hybalus cornifrons, Dej. Cat.
? *glabratus*, Pk. teste Dej. Cat.
Habitat Ital. merid., Sicilia, Corfu, (Barbaria, teste Dej.)

Sp. 2. *Geobius barbarus*, Lap. Op. cit.
G. lævicollis, Dej. Cat. sine discr.
Habitat Algeria.

TRIODONTUS, Westw.

(Pl. XII. fig. 4 *a*—4 *e*, and details.)

Corpus ovale, depressum, fere *Colymbetis* pedibus posticis subelongatis. *Caput* in mare cornu erecto medio, fœminæ inerme. *Labrum* exsertum transversum, margine antico fere recto, angulis rotundatis. *Mandibulæ* lateribus detectis, 3-dentatæ, dente interno in mandibula dextera, minimo fere inconspicuo. *Maxillæ* fere ut in *Geobio*, lobo supero longiori, spinulis curvatis brevioribus et fere æqualibus, lobo interno parvo, apice dentibus vel spinis nonnullus minutis. *Mentum* fere quadratum, anticè vero parum angustatum. *Palpi labiales* breves, in scapos duos insidentes; 3-articulati, articulo basali minuto, 2do in medio intus angulato et setoso; labii lobi sub scapos labiales distincti. *Antennæ* 10-articulatæ breves, articulo basali parvo; clava articulis liberis. *Pronotum* in ♂ retusum et subtuberculatum. *Tibiæ* anticæ breves latæ, 3-dentatæ; posticæ 4 in medio dentatæ. *Calcaria* elongata. *Ungues* simplices elongati.

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* In the first of these works Fabricius gives Tangier as the habitat of this species, and in the latter Mauritania.

These characters are derived from a small species from Madagascar, known in various collections under the name of *Orphnus Madagascariensis*, but which M. Guérin has described in his "Iconographie" under that of *O. nitidulus*. It differs, however, in several respects from *Orphnus* as well as from *Geobius*, to which it is also nearly allied.

The front of the pronotum differs in different specimens (as in most cornuted insects), in the extent of the impression in front; in some are three small central tubercles in a row at the hind part of this impression, with two lateral ones, whilst in others they are more or less obliterated. I have also seen several specimens with the front of the thorax smooth and entire, as in the female, but with a small elevated tubercle in the middle of the clypeus, as though it were the rudiment of the horn of the male.

ÆGIDIUM. (Cat. Gall. sine descr.)

(Pl. XII. fig. 5—8, and details.)

Corpus oblongo-ovatum, thorace fere elytrorum latitudine, capite in utroque sexu inermi, pronoto vero in mare valde excavato, lateribus angulato-elevatis. *Caput* transversum. *Clypeus* margine antico lato, vix sinuato. *Labrum* exsertum, latum, angulis rotundatis ciliatis. *Mandibulæ* lateribus exsertis corneæ bidentatæ, dente apicale bifido, margine interno membrana ciliata instructo. *Maxillæ* lobo apicali lato, extus rotundato, intus in angulum acutum producto, margine supero ciliis latis corneis curvatis armato; lobo interno corneo subacuto, ante apicem supra seta spiniformi instructo. *Palpi* mediocres, filiformes, articulo ultimo elongato-ovato. *Mentum* ovatum, anticè angustius. *Palpi labiales* brevissimi, in scapos insidentes. *Labium* bilobum, lobis ultra basin palporum exsertis. *Antennæ* 10-articulatæ, articulis clavæ liberis, ultimo minori. *Thorax* latior quam longus, lateribus rotundis, anticè quam posticè vix latior, in mare excavatus, in fœmina vero canali

brevi centrali tantum instructus. *Prosternum* in spinam anticè productum. *Elytra* ovalia. *Pedes* mediocres; tibiis anticis haud serratis, apice externè 3-dentatis; tibiis posticis in medio extus subdentatis, apice externo in spinam acutam productis. *Calcaria* longa. *Ungues* simplices. *Podex* depressus, elytris haud tectus. (Insecta Americana.)

Sp. 1. *Ægidium Colombianum*, Westw. (Pl. XII. fig. 7, 8.)

Æ. nigrum, capite thoraceque lævibus nitidis, elytris subpiceis carinatis et punctis ovalibus obsitis; maris pronoto tuberculo frontali et excavatione magna dorsali; fœminæ pronoto canaliculato.

Long. corp. ♂ lin. 9; ♀ lin. 7½.
Habitat in Colombia. In Mus. D. Reich, Parisiis.

Sp. 2. *Ægidium parvulus*, Bilberg. (*Æg. muticum*, Dej. Cat. ined.) (Pl. XII. fig. 6, and details.)

Æ. angustius, nigro-piceum, obscurum, undique punctatum, elytris bicarinatis, pronoto canali dorsali subobsoleto.

Long. corp. lin. 5½.
Habitat in insula Guadeloupe. In Mus. D. Hope et Melly.

Obs.—Individuum vidi reliquis simile, nisi in margine antico pronoti tuberculo instructo, ut in maribus reliquorum; aliter simillimus.

Sp. 3. *Ægidium hædulus*, Dej. Cat. ined.

Æ. nigrum, nitidissimum, pronoto maris in medio valde depresso punctato, lateribus angulato-elevatis, tuberculoque frontali in utroque sexu armato, ♀ impressione seu canali frontali lato minime profundo; elytris magis rotundatis, punctatis, punctis in strias irregulares dispositis.

Long. corp. ♂ 5; ♀ lin. 4.
Habitat in Brasilia.
In Mus. Hope, Melly, et Soc. Ent. Lond.

Obs.—Individua pro fœmina supra descripta tuberculum habent in medio marginis antici prothoracis, articulumque 2dum palporum labialium in medio intus angulatum et setosum. Mandibulæ maris dentes habent magis acutos quam in *Æg. parvulo*, et articulos 5, 6, et 7 antennarum intus acute dentatos.

Sp. 4. *Ægidium? Guianense*, Westw. (Pl. XII. fig. 5*a*—5*d*.)

Æg.? breve convexum, castaneum, pronoto posticè parum angustato, mandibulis extus cornu obtuso armatis.

Long. corp. lin. 4½.

Habitat in Guiana. D. Schomburghk. In Mus. nostr.

E reliquis differt habitu, lateribus pronoti minus rotundatis, ut et structura partium nonnullarum essentialium. Vix tamen genus distinctum format.

Clypeus anticè rotundato-productus, punctatissimus. Labrum exsertum, semicirculare, ciliatum. Mandibulæ exsertæ, versus medium lateris externi cornu brevi lato truncato armatæ, dentibus duobus, supero bifido ut in *Ægidiis* veris. Maxillæ etiam ut in illis, lobo interno vero in hamum simplicem producto. Pronotum transversum, marginibus serrulatis, et cum elytris fere continuis; in medio versus marginem anticum parum longitudinaliter impressus et punctatus, spatio postico lævi nitido et fere punctis destituto, lateribus vero punctatis. Elytra punctata; punctis in strias fere regulares (10 in singulo) dispositis. Tibiæ anticæ acute 3-dentatæ, unguibus simplicibus. Tarsi 4 postici articulo basali intus ciliis rectis numerosis instructo.

ORPHNUS, MacLeay.

(Pl. XII. fig. 9, and details.)

This is an interesting genus, which evidently forms a connecting link with such of the smaller *Dynastidæ* as have the head cornuted, and the thorax excavated in front in the males. The entire structure of the mouth, however, proves its nearer relationship with the preceding genera; and hence the opinion of Latreille (Règne An. iv. 549), that it is identical with *Oryctes*, cannot be adopted.

The description of the trophi given by Mr. MacLeay disagrees so completely with the numerous dissections which I have made of nearly every species, that it is necessary to give the following characters of the parts of the mouth.

Labrum exsertum, transversum, anticè emarginatum, angulis rotundatis, margine antico valde setoso. *Mandibulæ* latæ planiusculæ, extus valde curvatæ, intus dentibus 4 acutis armatæ, dente 2do majori, margine interno versus basin membrana setosa instructæ. *Maxillæ* bilobæ, lobo exteriori obtrigono, angulo interno acuto, dorso longe ciliato, ciliis curvatis et spinulosis, lobo interno parvo corneo, setigero, subtridentato, dente intermedio longiori et acuto. *Palpi maxillares* articulo ultimo oblongo ovato, margine externo tamen fere recto. *Mentum* subquadratum, lateribus parum rotundatis, margine antico in medio paullo angulato. *Palpi labiales* in scapos duos breves et latos insidentes, articulo ultimo subovato, præcedentibus majori. *Labium* e lobis duobus rotundatis membranaceis ciliatis ad apicem articuli 1mi palporum extensis formatum.

Sectio 1. Species Indicæ.

Sp. 1. *Orphnus bicolor*, Fab. MacLeay.

Long. corp. lin. $3\frac{1}{2}$.

Sp. 2. *Orphnus Mysoriensis*, Westw.

O. brunneus seu nigro-piceus, tuberculo elevato in medio marginis postici prothoracis, elytris irregulariter punctatis.

Long. corp. ♂ lin. 5; ♀ lin. $4\frac{1}{3}$.
Habitat in Ind. Orient., Mysore.
In Mus. D. Hope.

Clypeus in mare cornu erecto, fere recto armatus, capite posticè punctulato. Prothorax glaberrimus, excavatione media profunda fere ad marginem posticum extensa, ubi desinit in tuberculo elevato, lateribus conico-elevatis, et acutis, versus caput parum prominentibus. Elytra subbrevia, valde convexa, punctatissima, punctis irregularibus striaque suturali. Tibiæ anticæ dentibus 3us magnis et acutis armatæ. Tarsi simplices. Fœmina differt capite thoraceque inermibus.

Sp. 3. *Orphnus picinus*, Westw.

O. piceo-niger, nitidus, capite ♂ cornu erecto, prothoraceque excavatione magna media, margine postico marginato, elytris striis irregularibus parum impressis.

Long. corp. ♂ lin. $4\frac{1}{2}$; ♀ lin. 4.
Habitat in Ind. Orient., Bombay.
In Mus. D. Melly et nostr.

Præcedenti parum minor, angustior et minus convexus. Prothorax ♂ excavatione magna ovali media punctata, fere ad marginem posticum thoracis extensa, tuberculo minuto versus marginem anticum, lateribus excavationis conico-elevatis, apicè obtuso, lateribusque versus caput fere rectis. Elytra striis nonnullis irregularibus impressis et vage punctatis.

Fœmina differt capite inermi prothoraceque integro, nisi excavatione minuta versus medium marginis antici.

Sp. 4. *Orphnus impressus*, Westw.

O. piceus vel rufo-piceus, capite posticè in ♀ tuberculo parvo armato, pronotoque anticè excavatione triangulari instructo ♀.

Long. corp. lin. 3½—4.
Habitat in India Orientali centrali.
In Mus. D. Hearsey et Soc. Ent. Lond.

O. Mysoriensi ♀ valde affinis, differt tamen statura minori, prothoraceque anticè impresso margineque postico in medio parum elevato et disco versus marginem posticum interdum longitudinaliter tenuissimè canaliculato.

♂ ? (vel ♂ *O. bicoloris ?*) Niger, nitidus, vage punctatus, elytris irregulariter striatis, pedibus castaneis, clypeo cornu brevi erecto, pronotoque anticè semicirculariter excavato, excavatione vix ultra medium pronoti extensa, lateribus excavationis posticè vix elevatis.

Long. corp. lin. 3¼.
Habitat in Ind. Orient. centrali.
In Mus. D. Hearsey.

Idem vidi cum nomine "Africa" pro patria designatum—an recte?

Sp. 5. *Orphnus nanus*, Westw.

O. niger aut castaneus, nitidus, oblongus, capite ♂ cornu brevi erecto et pronoto semicirculariter excavato, excavatione haud ultra medium pronoti extensa lateribusque vix elevatis et in tuberculo terminatis, capite pronotoque vage punctatis, elytrisque irregulariter striatis punctisque majoribus in strias rudas dispositis.

Long. corp. lin. 2¾.
Habitat in India Orientali.
In Mus. D. Hearsey.

O. impresso valde affinis, præsertim in maribus; differt tamen magnitudine minori (multa enim vidi ejusdem magnitudinis). Fœmina etiam differt pronoto anticè magis retuso, clypeoque tuberculo elevato instructo.

Sectio 2. Species Africanæ.

Sp. 6. *Orphnus Meleagris*, (Dej. Cat. sine descr.)
(Plate XII. fig. 9, and details.)

Latus, castaneo-fulvus; elytris stria suturali punctisque irregularibus, capite cornu elevato conico frontali pronotoque valde excavato, lateribus conico-elevatis, versus caput subrotundatis.

Long. corp. lin. 5.
Habitat in Senegallia.
In Mus. D. Hope.

Species reliquis latior; fulvo-castaneus, nitidus, tenue punctatus; antennarum articuli 6 et 7 setam longam emittunt; pronoti excavatio subtriangularis, profunda, tenue punctata, fere ad marginem posticum extensa, lateribus excavationis in medio conico-elevatis, at versus caput parum rotundatis, margine postico pronoti haud tuberculato. Tibiæ anticæ latæ, fortiter tridentatæ, dente interno fere ad basin tibiæ posito. Tarsi antici articulo basali brevissimo, articulis latis, ultimo ovato.

Fœminam simillimam at paullo obscurionem, capite et pronoto simplicibus, tarsis anticis ut in mare formatis, vidi in Mus. D. Hope, cum nomine *O. Dumolinii* inscriptam.

Sp. 7. *Orphnus MacLeay*, Laporte, (Ann. Soc. Ent. de France, vol. i. p. 405.)

"O. fusco-nigricans, capite anticè cornuto, thorace medio excavato, scutello posticè rotundato, elytris fusco-rubidis, valde punctatis, ad suturam stria impressis, corpore subtus pedibusque ferrugineis.

"Long. 4, larg. 2 lign."
Habitat in Senegallia.
An idem cum præcedenti?

Sp. 8. *Orphnus Senegalensis*, Lap. (op. cit. p. 406.)

"O. obscurè fuscus, elytris irregulariter striatis, thoracis lateribus minus elevatis quam in præcedente.

"Long. 3, larg. 1½ lign."
Habitat in Senegallia.

Insectum masculinum e Senegallia cum hoc nomine inscriptum in Mus. D. Hope hospitatur: colore castaneo, capite et margine antico pronoti nigricantibus, lateribus excavationis pronoti conico-subelevatis et versus caput tuberculo utrinque armatis, tarsis simplicibus, elytris punctis versus suturam in striis irregularibus dispositis. Long. corp. lin. $3\frac{1}{2}$, (mensur. Angl.)

Fœminam hujus in Mus. D. Melly vidi simillimam, at capite in medio tuberculo minuto armato et pronoto anticè impresso. Long. corp. lin. $3\frac{1}{3}$. Habitat etiam in Senegallia.

Sp. 9. *Orphnus Verreauxii,* Reich. MSS. in Guér. Expl. Icon. R. An. p. 86.

E præcedentibus differt magnitudine majori (long. 14 mill. = 7 lin. mens. Angl.), capite cornu parvo elevato armato, pronoto excavatione transversa, tarsis anticis in ♂ ungue interno maximo depresso et bifido: in ♀ simplici.

Habitat Cap. Bon. Spei.

Sp. 10. *O.? nitidulus,* Dufour. Dej. Cat. sine descr.

Habitat Senegallia.

DESCRIPTION OF THE PLATES.

Plate XI.

Fig. 1 *a*—1 *f*, details of *Hybosorus arator.*

1 *a*, clypeus, labrum and mandibles; 1 *b*, maxilla; 1 *c*, instrumenta labialia; 1 *d*, antenna; 1 *e*, terminal joints of antenna.

2, *Silphodes Philippinensis;* 2 *a*—2 *k*, details.

2 *a*, clypeus, labrum and mandibles; 2 *b*, mandible; 2 *c*, extremity of mandible seen sideways; 2 *d*, maxilla; 2 *e*, instrumenta labialia; 2 *f*, antenna; 2 *g*, anterior tibia and tarsus of the male; 2 *h* and 2 *i*, anterior ungues ♂ in different positions; 2 *k*, anterior tibia and tarsus of the female.

3 *a*—3 *f*, details of *Coilodes gibbus.*

3 *a*, labrum; 3 *b*, mandible; 3 *c*, maxilla; 3 *d*, instrumenta labialia; 3 *e*, anterior tibia; 3 *f*, ungues (in all the feet similar).

4, *Chætodus piceus;* 4 *a*—4 *f*, details.

4 *a*, clypeus, labrum and mandible; 4 *b*, mandible; 4 *c*, maxilla; 4 *d*, instrumenta labialia (one of the palpi removed); 4 *e*, antenna; 4 *f*, part of antenna of *Chætodus irregularis.*

5, *Apalonychus Waterhousii;* 5 *a*—5 *g*, details.

5 *a*, head and antenna; 5 *b*, mandible; 5 *c*, maxilla; 5 *d*, instrumenta labialia; 5 *e*, extremity of antenna; 5 *f*, anterior leg; 5 *g*, posterior tibia and tarsus.

6, *Anaides fossulatus;* 6 *a*—6 *e*, details.

6 *a*, head; 6 *b*, maxilla; 6 *c*, instrumenta labialia; 6 *d*, punctures of pronotum; 6 *e*, striation of elytra.

Plate XII.

Fig. 1, *Cryptogenius Miersianus;* 1 *a*—1 *i*, details.

1 *a*, underside of front of body, showing the mode in which the head folds into the anterior cavity of the prosternum, 1 *b*, underside of head; 1 *c*, mandible; 1 *d*, maxilla; 1 *e*, instrumenta labialia; 1 *f*, labial palpus removed; 1 *g*, antenna; 1 *h*, areolated punctures of the pronotum; 1 *i*, striation of elytra.

2 *a*—2 *c*, details of *Geobius Dorcas.*

2 *a*, mandible; 2 *b*, lobes of maxilla; 2 *c*, antenna.

3 *a*—3 *e*, details of *Ochodæus chrysomelinus.*

3 *a*, labrum; 3 *b*, 3 *c*, mandibles; 3 *d*, maxilla; 3 *e*, antenna.

4 *a*—4 *e*, details of *Triodontus nitidulus.*

4 *a*, labrum and mandible; 4 *b*, mandible; 4 *c*, maxilla; 4 *d*, instrumenta labialia; 4 *e*, antenna.

5 *a*—5 *d*, details of *Ægidium? Guianense.*

5 *a*, clypeus, labrum and mandible; 5 *b*, mandible; 5 *c*, maxilla; 5 *d*, instrumenta labialia.

6, *Ægidium parvulus;* 6 *a*—6 *h*, details.

6 *a*, front of head; 6 *b*, labrum; 6 *c*, mandible; 6 *d*, maxilla; 6 *e*, instrumenta labialia; 6 *f*, labium and labial palpus; 6 *g*, antenna, 6 *h*, part of antenna of *Æg. hædulus.*

7, *Ægidium Columbianum*, male; 7 *a*—7 *b*, details.

7 *a*, head and prothorax seen from the front; 7 *b*, the same seen laterally.

8, *Ægidium Columbianum*, female.

9, *Orphnus meleagris;* 9 *a*—9 *i*, details.

9 *a*, front of head; 9 *b*, mandible; 9 *c*, maxilla; 9 *d*, instrumenta labialia; 9 *e*, antenna; 9 *f*, head and prothorax seen sideways, 9 *g*, extremity of anterior tarsus and ungues; 9 *h* and 9 *i*, extremity of antennæ of *Orphnus picinus.*

XXVII. *Descriptions of a few nondescript Species of Beetles. By the* Rev. F. W. HOPE.

[Read 2d October, 1843.]

Genus CALLIRHIPIS, Latr.

Sp. 1. *Call. Laportei*, Hope. (Pl. XIII. fig. 1.)

Rubro-testaceus, antennis nigris, articulo primo excepto, crasso, antrorsum flavescente. Thorax aurantius, lineâ mediâ longitudinali nigrâ, duabus aliis lateralibus majoribus. Elytra rufo-flava, 6 lineis elevatis in singulo conspicua, maculis tribus atris, ad basin positis, apicibusque nigris. Corpus infra rubro-testaceum, lateribus pectoris atris, abdomine nigricante. Pedes femoribus parum incrassatis rubris, tibiis tarsisque nigris chelisque ferrugineis.

Long. lin. 6¼, lat. lin. 1½.

Habitat in Columbia.

The above insect is most probably allied to *Callirhipis scapularis* of M. Laporte; I received it lately from Coban, and name it in honour of the monographer of the *Rhiphiceridæ*, M. Laporte, now better known as the Count de Castelnau. He is now actively engaged as the leader of the expedition sent out by the French government to explore the interior of several of the unknown regions of South America. There is a second species of *Callirhipis* from the same country in my Cabinet, closely allied to the former, but as it has probably been described by M. Guérin, I do not at present attempt to describe it till it has been compared with several of the genus lately described by him.

Genus SAPERDA, Fabr.

Sp. 2. *Saperda ocularis*, Hope. (Pl. XIII. fig. 2.)

Aurantia, antennis nigro-griseis pubescentibus, capite antrorsum atro, dorsoque flavo, oculis fere undique albo-cinctis. Thorax posticè niger, ternis albis maculis notatis, maculis binis aliis albis utrinque ad latera positis. Elytra thorace triplo longiora aurantia, octo maculis albis atro-cingulatis ornatis, nonoque albido infra scutellum posito. Corpus infra nigrum, segmentis abdominis utrinque albo-maculatis, pedibusque atro-griseis.

Long. lin. 4½, lat. lin. 1¼.

Habitat in America Meridionali.

The above beautiful species of *Saperda* will at some future time be regarded as a subgenus. I know of no described genus to which it can at present be appropriated.

Genus PHILIDOTUS, MacLeay.

Sp. 3. *Pholidotus Reichei,* Hope. (Pl. XIII. fig. 3.)

Totum corpus supra nigrum. Thorax lateribus serratis, elytrisque fere glabris. Caput transverso-oblongum, rugosum, angulis ante oculos rotundatis. Mandibulæ acutæ. Thorax valde rugosus, angulis anticis haud porrectis, posticis acutis, lateribus valde serratis, disco irregulariter elevato-rugoso-varioloso. Scutellum parvum. Elytra nigra, obscura, fere glabra, linea utrinque elevata, erosa, e humeris ad medium disci oblique descendente. Corpus infra nigrum, pectore fortiter varioloso, annulisque abdominis punctatis. Pedes simplices, femoribus et tibiis punctatis, capillisque ferrugineis obsitis.

Long. lin. 15, lat. lin. 5.

Habitat in Colombia.

This remarkable insect will undoubtedly at some future period be regarded as the type of a new genus; at present I consider it as a *Pholidotus*, till enabled to figure the other sex. It is named in honour of M. Reiche, of Paris, possessor of a rich cabinet of *Coleoptera.*

The figure, which was painted in Paris, is well done, and I am indebted to M. Guérin for it.

Genus HEXARTHRIUS, Hope.

Sp. 4. *Hexarthrius Buquettii.* (Pl. XIII. fig. 4.)

Niger, mandibulis exsertis, denticulatis, unidentatis apicibus furcatis, capite thoraceque scabriusculis. Totum corpus nigrum, nitidum. Caput clypeo producto subemarginato, in medio depressum. Mandibulæ arcuatæ, apicibus furcatis, capite thoraceque longiores, introrsum crenatæ unidentatæ, dente majori fere ad basin posito, intus recurvo. Thorax canaliculatus elytrisque lævibus. Pedes tibiis anticis externe denticulatis, mediis unispinosis posticisque inermibus.

Long. lin. 35, lat. lin. 9.

E Museo Dom. Buquettii descriptus.

Habitat in Java.

The above species is evidently allied to the *Lucanus Rhinoceros* of Fabricius; it differs chiefly in having its mandibles bifurcate, whereas in *Rhinoceros* they are simply acute. It is named in honour of M. Buquet, who possesses one of the chief cabinets of *Coleoptera*

to be met with in Paris; he is a Marchand d'Insectes, and his moderate prices, compared with others, and obliging manners, entitle him to recommendation.

The figure is by M. Guérin.

Genus Lucanus, Linn.

Sp. 5. *Lucanus vitulus*, Dejean, ♀.

Niger, nitidus et glaber, quatuor tibiis posticis medio unispinosis. Caput anticè rotundatum, mandibulis brevibus acutis. Thorax marginatus, transverso-oblongus, angulis anticis haud productis, posticis parum rotundatis. Elytra lævia, thorace duplo longiora. Pedes tibiis anticis externè denticulatis, quatuor posticis in medio unispinosis.

Long. lin. 16, lat. lin. 6.

Habitat in Java.

The above insect, of which I only know the female, is described from a specimen in the collection of M. Buquet; it was labelled *Vitulus Dejean*, and consequently I have retained the manuscript name; and as it was compared with others in the collection of the Baron Dejean, no doubt of its identity can exist.

Sp. 6. *Lucanus Parryi*, Hope.

Affinis *Luc. Nepalensi*, Hope, at multo minor. Niger, nitidus, mandibulis longitudine capite æqualibus, elytris glabris, tibiis posticis unispinosis. Totum corpus supra et infra nigrum, nitidum, læve. Caput convexum, mandibulis apicibus acutis, supra dentatis. Thorax convexus, angulis anticis parum productis, posticis oblique rotundatis. Elytra lævia, humeris tuberculatis; pedibus tibiis anticis externè serratis, quatuor posticis unispinosis et rufo-ciliatis.

Long. lin. 16½, lat. lin. 5¼.

Habitat in agro Nepalensi.

♀ Fœmina differt mandibulis supra et infra dentatis, clypeo subemarginato, capite anticè rugoso-punctato, posticè glabro, tuberculo medio disci parum elevato.

The above species is described from the cabinet of Frederick Parry, Esq. of Cheltenham, after whom I have named it; the female is in my possession, and is also from Nepal.

XXVIII. *Monograph of the Genus* Panorpa, *with Descriptions of some Species belonging to other allied Genera. By* J. O. Westwood, F.L.S.

[Read 5th May, 1841.]

A valuable Monograph on the family *Panorpidæ* having been recently published by Dr. F. Klug, in the "Transactions of the Berlin Academy for 1836," I have thought that it would be both useful and interesting to give descriptions of such new species of this family as I have met with in the principal collections of London, by way of supplement to the memoir of the learned professor of Berlin.

In the monograph above mentioned are described thirteen species of *Nemoptera*, (which genus is however correctly regarded as not naturally belonging to this family,) five of which, from Caffraria and Arabia, are new; eleven species of *Bittacus*, eight of which, natives of the Cape of Good Hope, Senegal, Mexico, Chili, Brazil and New Holland, are new; and seven species of *Panorpa*, two of which, from Mexico, are new. In the genus *Boreus* is contained only the *B. hyemalis*. And, lastly, a new genus is established under the name of *Chorista*, founded upon an Australian species (*C. Australis*, Klug), resembling the ordinary *Panorpæ* in size, but not having the front of the head rostrated, although the parts of the mouth are analogous to those of *Panorpa*. The female only of this interesting insect has yet been recorded. Still more recently Dr. Burmeister has published the description of another new species of *Panorpa* from the East Indies, in his "Handbuch der Entomologie." Such is the extent of our present knowledge of this family. It is therefore with pleasure that I am able to add considerably not only to the species but even to the genera of this family. I regret, however, that I am unable to add any further account of the preparatory states of the species than is contained in my "Introduction to the Modern Classification of Insects." Since that work was published a very elaborate memoir on the internal anatomy of the common species has appeared in the "Annals of Natural History," published in Holland by Van der Hoeven.

Genus Panorpa, Linnæus.

A. Species Europææ.

Sp. 1. *Panorpa communis*, Linnæus.

Fusco-nigra, meso- et metathorace linea media lata lutea, abdominis apice rufo; alis ad apicem subacutis, hyalinis, venis fasciis maculisque nigris, stigmate elongato; vena prima longitudinali, pone stigma, ter furcata.

Sp. 2. *Panorpa Germanica*, Linnæus.

Fusco-nigra, meso- et metathorace linea media lutea, abdominis apice rufo-luteo; alis ad apicem rotundatis hyalinis, venis fasciis maculisque nigris, stigmate breviori; vena prima pone stigma bis furcata.

Such are the only characters which I have been able to discover which afford any satisfactory ground for the establishment of more than a single species amongst the British individuals belonging to this genus. By Mr. Stephens five species are given as British, namely:—1. *P. communis*, Linn.; 2. *P. affinis*, Leach; 3. *P. apicalis*, Steph.; 4. *P. borealis*, Steph.; and 5. *P. Germanica*, Steph.; but the characters given by him of these supposed species rest only on difference of size and variation of marking of the wings, neither of which appear to me to afford grounds for specific distinctions. The *P. Germanica* of Linnæus is described by that author as half the size of *P. communis*, with the wings only marked with a dark apical spot and stigma. The *P. Germanica* of Stephens wants the apical spot, but has a dark mark on the costal edge of the wings. Dr. Klug has, however, reduced all those supposed species to varieties of *P. communis*, a step which will, I believe, in the end, be found to be correct. In fact Mr. Stephens himself states (Illust. 6, p. 53) that *P. borealis* may be a variety of *P. Germanica*, and he has subsequently informed me that he is now of the same opinion as regards *P. apicalis*. After a very careful examination of specimens of the remaining three species—*P. communis*, *affinis*, and *Germanica*—I must confess that I can find no decided characters beyond those given above: I therefore consider *P. affinis* as a variety of *P. Germanica*, and I am not without an idea that the variation in the form of the wings, and the difference in the number of furcations of the veins behind the stigma, will also prove unsatisfactory and insufficient.

Sp. 3. *Panorpa rufostigma*, Westwood.

Fulva, thorace luteo, lateribus nigris; alis hyalinis, fusco maculatis apiceque fusco, stigmate magno rufo; vena 1ma longitudinali, post stigma, bis furcata.

Long. corp. cum cauda extensa 5¾ lin., expans. alar. lin. 13.

Habitat in Albania. D. S. S. Saunders.

Antennæ nigræ, articulis duobus basalibus fulvis. Caput fulvum, regione ocellorum lineaque supra basin antennarum nigris. Meso- et metathorax obscurè lutei, lateribus nigricantibus; scutellis luteis. Abdomen obscure fulvum, segmentis duobus basalibus ad basin nigris; cauda forcipeque ejusdem magnitudine ut in *P. commune*, pallide fulvis. Corpus subtus obscure luteum, pedibus magis fulvescentibus; alis hyalinis, stigmate magno rufo, punctis tribus ante medium, in triangulum dispositis, linea irregulari obliqua pone stigma apiceque fuscis. An var. *P. Germanicæ?*

B. Species Asiaticæ.

Sp. 4. *Panorpa appendiculata*, Westwood.

Nigra, capite thoraceque fulvis; abdominis segmento 2do in ♂ appendiculo tenui valde elongato, alis nigris, albo-variis.

Expans. alar. 1unc.

Habitat Madras. D. W. Elliott. Mus. Britann. ♂ ♀.

Caput cum rostro luteo-fulvum. Antennæ nigræ, articulis 2us basalibus fulvis. Thorax fulvus, metathorax magis fulvescens. Pedes lutei, tarsis obscurioribus. Abdomen nigrum; forceps ♂ niger, maris segmentum 2dum in appendiculo pallide flavescenti elongato tenui et supra segmenta tria sequentia extenso productum, segmentum 5um inerme. Alæ nigræ, fasciis 5 latis irregularibus albis, 4ta interrupta; vena 1ma longitudinali post stigma bis furcata.

Sp. 5. *Panorpa Javanica*, Westw.

Nigra, thoracis abdominisque lateribus rufescentibus; alis sublatis hyalinis, fasciâ parvâ, postice dilatatâ, ante medium alæ, fasciâ alterâ latâ, postice furcatâ pone medium; apiceque lato nigris.

Expans. alar. lin. 13¾.

Habitat in Java. D. Horsfield. In Mus. Soc. Merc. Ind. Orient.

Nigra, thoracis et abdominis lateribus rufescentibus; apex abdominis ♀ piceus; rostrum rufum. Antennæ nigræ, basi rufæ. Pedes rufi, tarsis obscurioribus. Alæ sublatæ, vena prima longitudinali post stigma ter vel quadri-furcata, hyalinæ puncto parvo versus basin; fascia parva, antice interrupta et postice dilatata ante medium alæ; puncto altero oblongo paullo post medium alæ et versus stigma, fascia latissima postice furcata, apiceque lato nigris.

Sp. 6. *Panorpa angustipennis*, Westw.

P. nigra, rostro rufo, lobis lateralibus thoracis luteis, alis valde elongatis, basi angustis, fasciâ tenuissimâ ante medium alterâque versus apicem postice furcatâ; apice lato, postice abbreviato, nigris ♀.

Expans. alar. lin. 13¼.

Habitat "Tennasserim Coast" India vel Java. In Mus. D. Hops.

Caput nigrum, rostrum rufum, valde elongatum. Antennæ longæ, nigræ; articulis duobus basalibus rufis. Thorax niger, lobis lateralibus meso- et metathoracis luteis. Abdomen nigrum, ventre, pectore pedibusque luteis; tarsis obscurioribus. Alæ elongatæ, basi valde augustæ, hyalinæ; fascia tenuissima abbreviata ante medium alæ, puncto medio, fascia ante apicem (ad costam dilatata postice angusta et furcata) apiceque (antice lato postice tamen abbreviato) nigris; vena 1ma longitudinali post stigma ter furcata.

Sp. 7. *Panorpa furcata*, Hardwicke. (Linn. Trans. xiv. t. 5, f. 2—6.)

Testacea, alis flavescentibus, punctis 4 ante medium, fasciâ latâ postice furcatâ apiceque lato nigris; abdominis ♂ segmento 5to furcâ cornea armato, 6mo et 7mo valde elongatis.

Long. corp. ♂ (cum forcip.) lin. 16½, expans. alar. lin. 17—19½.

Habitat in Nepalia. D. Hardwicke. Mus. nostr. &c. ♂ ♀.

Sp. 8. *Panorpa Charpentieri*, Burmeister.

Capite abdomineque fuscis, thorace cum pedibus testaceo, dorso infuscato; alis hyalinis, puncto singulo fusco in cellula una media.

Long. corp. ♂ lin. 7½, ♀ 6 lin.

Habitat in India Orientali.

P. Charpentieri, Burmeister, Hanb. d. Ent. 2, p. 958.

Sp. 9. *Panorpa Japonica*, Thunberg.

Nigra, pedibus testaceis, alis hyalinis, fasciis duabus maculisque atris.

Magn. *P. communis.*

Habitat in Japonia.

P. Japonica, Thunberg, Nov. Ins. Sp. Diss. 3, p. 67, f. 9; Klug, Mon. Panorp. p. 26; Olivier, Enc. Méth. 8, 715; Burm. Handb. d. Ent. 2, p. 957.

C. Species Americanæ.

Sp. 10. *Panorpa rufa*, G. R. Gray.

Rufo-testacea, antennis fuscis, basi rufescentibus, regione ocellorum nigra; alis elongatis, apice subacutis, hyalinis; maculis duabus basalibus, fascia obliqua ante medium, macula media costali, fascia pone medium postice furcata apiceque nigris, punctis nonnullis hyalinis in apice nigro; abdomine ♂ elongato, segmento 5to supra inermi.

Expans. alar. lin. 12½.

Habitat in Georgia Americæ. In Mus. Britann. ♂ ♀.

Panorpa rufa, G. R. Gray, in Griffith's Animal Kingd. Insects, pl. 105, fig. 2.

Panorpa fasciata, Klug. Mon. Panorp. p. 25.

Sp. 11. *Panorpa lugubris*, Swederus.

Nigra, abdomine ferrugineo, apice nigro, segmento 5to ♂ inermi; alis nigris, albo-maculatis.

Expans. alar. lin. 12.

Habitat in America Septentrionali. Mus. nostr. ♂ ♀.

P. lugubris, Swederus. Swed. Trans. 1787, p. 279; Klug. Mon. Panorp. p. 20.

P. scorpio, Fabr. Ent. Syst. Emend. 2, p. 97; Oliv. Enc. Meth. 8, p. 715; Leach, Zool. Miscell. 2, tab. 94, f. 3, 4; Burmeister, Handb. d. Ent. 2, p. 957.

Sp. 12. *Panorpa nebulosa*, Westw.

Obscure luteo-fulva, abdominis segmento 5to maris inermi; alis subcinereo-hyalinis, puncto magno nigro ad basin stigmatis, venisque brevibus transversis nebulosis.

Expans. alar. lin. 11.

Habitat in America boreali. Dom. E. Doubleday.

In Mus. Newman [nunc Mus. Britann.]

Obscure luteo-fulva, regione ocellorum nigra. Antennæ fuscæ. Mesothorax linea laterali ad basin alarum punctoque parvo utrinque nigricantibus; metathorax etiam puncto parvo utrinque obscuro; prothorax margine antico nigro-ciliato; abdominis segmenta basalia ad latera obscuriora, segmento 5to maris inermi. Alæ subcinereo-hyalinæ, puncto magno costali ad basin stigmatis nigro, stigmate ipso pallido; venis omnibus transversis cinereo-nebulosis, cellulisque nonnullis apicalibus puncto cinereo notatis; vena prima longitudinali pone stigma, tantum bis (interdum semel) bifida. Alæ ♀ cinereo magis notatæ.

Sp. 13. *Panorpa punctata*, Klug.

Testacea, thoracis maculis abdominisque basi fuscis; alis hyalinis, nervis punctoque in singula cellula nigris.

Habitat in Mexico.

P. communi paullo minor.

P. punctata, Klug. Mon. Panorp. p. 25, pl. ann. fig. 9.

Sp. 14. *Panorpa terminata*, Klug.

Testacea, capite thoraceque fusco-maculatis; alis hyalinis, apice nigricantibus.

Magnitudo præcedentis.

Habitat in Mexico.

P. terminata, Klug. Mon. Panorp. p. 26, pl. ann. fig. 10.

Sp. 15. *Panorpa Americana*, Swederus.

Testacea, alis latis flavescentibus, fasciis tribus fuscis (2da recta, ultima apicali), anticis ante fasciam 1m, et inter fascias 1m et 2m puncto parvo fusco; venis fulvis, in partibus fasciatis fuscis; abdominis segmento 5to in ♂ cornu brevi erecto armato.

Expans. alar. lin. 11.

Habitat in Georgia Americæ. Mus. nostr. ♂, ♀.

Panorpa Americana, Swederus, Act. Holm. 1787.

Panorpa fasciata, Fabr. Ent. Syst. ii. p. 98. Klug, Mon. Panorp. p. 252.

My specimens of this insect exactly agree with the descriptions of Swederus and Fabricius, and cannot be considered as identical with the subsequently described allied species. The *P. fasciata* of Klug appears to be composed of several distinct species confused together.

Sp. 16. *Panorpa venosa*, Westw.

Obscure fulva, meso- et metathoracis lateribus obscuris, abdomine obscuro, linea dorsali pallidiori; alis pallide flavo-luteis, venis transversis fasciis apiceque nigricantibus. ♀.

Expans alar. lin. 12.

Habitat in Georgia Americæ. In Mus. Britann.

Obscure fulva, regione ocellorum nigra. Antennæ fuscæ, articulis duobus basalibus fulvis. Meso- et metathorax lobis lateralibus obscuris, scutellis pallidioribus. Abdomen fulvofuscescens, linea dorsali pallidiori. Pedes luteo-fulvi, tarsorum apice fusco. Alæ quam in sequentibus evidenter latiores et ad apicem magis rotundatæ, pallide flavo-luteæ, punctis numerosis obscure fuscis, uno prope basin (in alis anticis), fascia, in medio interrupta ante medium, linea brevi transversa incisa prope costam, tunc fascia obliqua irregulari pone medium apiceque irregulariter nigro-fuscis, venis transversis plus minusve nigro-fusco tinctis, stigmate fulvo; alæ posticæ minus maculatæ.

Sp. 17. *Panorpa confusa*, Westw.

Fulva, alis luteo-hyalinis, venis nigricantibus, transversis fuscotinctis, fasciis apiceque tenuibus nigricantibus; abdominis segmento 5to maris supra spina longa armato, 6to ad basin haud inciso. ♂ ♀.

Expans. alar. lin. 11.

Habitat in America Septentrion. Massachusetts. In Mus. nostr.

Tota fulva, regione ocellorum antennisque nigris exceptis. Abdomen maris segmento 5to spina longiori acuta obliqua armato. Alæ lutescentes, costa basique magis luteis, venis nigricantibus; puncto parvo prope basin; fascia tenui, in medio interrupta, ante medium; tunc (pone medium) fascia tenui irregulari in medio geniculata, apiceque tenui, nigricantibus; venis transversis præsertim versus apicem alarum nigro tinctis; alæ posticæ minus variegatæ; articuli tarsorum ad apicem nigri.

I am indebted to Dr. Thaddeus W. Harris, a distinguished American Entomologist, for both sexes of this insect, which I received with the name of *P. fasciata* of Fabricius; from that species, however, they are quite distinct, as already noticed, whilst they have several characters which seem to warrant my considering them as specifically distinct from the following species.

Sp. 18. *Panorpa debilis,* Westw.

Luteo-fulva, abdominis basi supra nigro, segmento 5to cornu brevi obliquo armato, 6to basi supra emarginato; alis pallidis, fasciis apiceque fuscis.

Expans. alar. lin. 11.

Habitat in America Septentrionali. Dom. E. Doubleday.

In Mus. D. Newman [nunc Mus. Britann.]

Luteo-fulva, regione ocellorum nigra; antennis fuscis, ad basin rufescentibus. Abdomen segmentis tribus basalibus supra nigris; segmento 5to cornu brevi subobtuso obliquo supra ad apicem armato, 6to ad basin supra emarginato. Alæ pallidæ, luteo colore (nisi versus basin) vix tinctis; venæ longitudinales pallidæ (præsertim versus apicem alarum), puncto parvo versus basin; fascia in medio interrupta ante medium tunc (pone medium) fascia altera irregularis sublata, ad costam dilatata et in medio angulata apiceque lato fusco-nigris; vena 1ma longitudinalis pone stigma bis bifida. Tarsi articulis ad apicem nigris. Pedes setis brevibus nigris.

Individuum in Musæo Britannico vidi, ad hanc speciem ut mihi videtur etiam pertinens, læte fulvum, stigmate alarum pallide flavo cornuque dorsali segmenti 5ti abdominis maris magis elongato.

This appears to be a much weaker insect than the preceding; the veins of the wings are slender and pale coloured, and the markings of the wings are much paler.

Sp. 19. *Panorpa subfurcata,* Westw.

Obscure fulva, capite magis rufescente, abdomine supra ad basin obscuro, segmento 5to cornu brevi dorsali armato; alis fusco-fasciatis, vena pone stigma ad apicem vix furcata. ♂ ♀.

Expans alar. lin. 11—13.

Habitat in Nova Scotia. In Mus. Britann.

Obscure fulva. Caput rufescens, regione ocellorum antennisque nigris, harum articulis duobus basalibus rufescentibus. Thorax supra obscure luteus. Abdomen luteo-fulvum, supra ad basin obscurum; segmento 5to cornu brevi dorsali armatum, 6to supra ad basin haud emarginato. Pedes lutei, tarsorum articulis ad apicem obscuris. Alæ pallidæ, maculis duabus prope basin, fascia transversa ante medium, macula transversa in medio costæ, tunc (pone medium) fascia obliqua irregularis in medio vix angulata, ad costam dilatata, apiceque sublato (albo punctato) maculaque ad angulum analem nigris; vena

1ma pone stigma bis furcata, furca secunda fere ad apicem alæ, vena transversa stigma cum hac vena conjungenti obliqua; maculæ basales in alis posticis obsoletæ.

Genus EUPHANIA, Westw.

Caput prothorace haud occultum, infra in proboscidem longitudine mediocri productum; *ocellis* 3.

Antennæ alis longitudine æquales. *Thorax* et abdomen ut in *Panorpa*. *Pedes* elongati, graciles, tibiis bicalcaratis; tarsorum unguibus acutis, basi tantum serrulatis, pulvillo magno intermedio adjecto. *Alæ* longæ, elongato-ovatæ; anticæ costâ dilatata haud areolata, disci venis longitudinalibus fere ut in *Panorpa* dispositis (vena prima post stigma, attamen ad apicem haud furcata), venis brevibus transversis valde irregularibus, nonnullis obliquis, venis alarum posticarum magis regularibus.

The general characters of this insect so closely resemble those of *Panorpa*, that it is not without some hesitation that I venture to separate it from that genus in the absence of an opportunity of examining the trophi, the only known specimen being contained in the collection of the British Museum, and it being contrary to the regulations of that institution to allow the dissection of specimens of natural history. As, however, there are several decided characters, such as the shorter proboscis, very long antennæ, dilated costa to the fore wings, and comparatively unarmed ungues, in which this insect differs from the species of *Panorpa*, (which together constitute a remarkably distinct group, which would be broken down by the introduction of the present species therein,) I have considered it best to regard it as generically distinct.

Euphania luteola, Westw. (Pl. XIV. fig. 1.)

Fulva, antennis (articulis 4 vel 5 basalibus fulvis exceptis) nigris, meso- et metathorace piceis, ad latera rufescentibus; abdomine piceo, segmentis 4 apicalibus fulvis, pedibus piceis, femoribus fulvis; alis pallide luteis, ad basin magis fulvis, venis discoidalibus fuscis, basalibus tamen fulvis, stigmate fusco.

Long. corp. lin. 5½. Alar. expans. lin. 15½.

Habitat —— ? In Mus. Britann.

Fig. 1 *a*, the head seen in front.

Genus Merope, Newman.

Caput breve, sub prothoracem fere occultum ; subtus in rostrum longitudine mediocre productum. *Antennæ* inter oculos insertæ, basi contiguæ dimidio corpore vix breviores hirtæ, 30-articulatæ ; articulo 1mo crasso, 2do minori, 3tio minimo, 4to ad 10m sensim magnitudine crescentibus discretis transversis ; reliquis 20 sensim decrescentibus apicalibus minutissimis. *Ocelli* 0. *Oculi* laterales, reniformes, supra in verticem conjuncti. *Trophi* mediocriter elongati, rostrum formantes. *Labrum* elongatum, apice acutum. *Mandibulæ* planæ, corneæ, rectæ, apice dentibus duobus acutis curvatis alteroque interno obtuso armatæ. *Maxillæ* e lobis duobus apicalibus conicis extus valde ciliatis conniventibus constantes ; palpi loborum longitudine curvati, ut mihi videtur 5-articulati, articulo basali extus setis longis armato, reliquis irregularibus, ultimo, ut videtur, biannulato. *Labium* subquadratum, angulis anticis rotundatis, ciliatis ; palpi labiales breves, biarticulati. *Prothorax* brevis, transversus ; mesothorace angustior ; meso- et metathorax equales majores. *Alæ* haud plicatæ latissimæ, apice rotundatæ, subæquales ; venis multis longitudinalibus furcatis, venis minutis transversis connexis ; costa lata in areas multas divisa. *Pedes* graciles, subæquales ; tibiis omnibus apice bicalcaratis. *Tarsi* 5-articulati ; unguibus integris. *Abdomen* ♀ obesum, apice acutum, appendiculis duobus minutis biarticulatis divergentibus terminatum.

This singular genus (of which a single specimen, collected by Mr. E. Doubleday at Trenton Falls, in the United States of North America, has hitherto only been seen) possesses so much the appearance of a *Hemerobius*, in the short and very broad posteriorly rounded wings, that Mr. Newman, who published a description of it in the last volume of the Entomological Magazine, was unable to decide as to the natural family to which it belonged. Having, however, through the kindness of that gentleman, had an opportunity of examining and dissecting the mouth of this unique individual, I have been enabled to determine that its natural situation is in the present family, with the females of which it further agrees in the two minute biarticulate appendages at the extremity of the body. The want of ocelli, emarginate eyes, dilated antennæ, simple ungues, broad wings, together with the singular character which the anterior pair of those organs exhibit, in the possession of a minute semicircular tuberculous appendage near the base of the inner margin, are characters which at once distinguish it from every other genus in the family.

The only species is, from the last-named character, named

Merope tuber, Newman. Ent. Mag. v. 180.
(Pl. XIV. fig. 2.)

Fuscescens, antennis, capite et prothorace saturatioribus; abdomine pedibus, alisque dilutioribus, oculis nigris.

Corp. long. ·35 unc. Alar. expans. 1·05 unc.
Habitat Trenton Falls, N. Amer. D. Doubleday.
[Mus. Britann.]

DESCRIPTION OF THE FIGURES.

2, the insect of the natural size; 2 *a*, the same magnified; 2 *b*, the head in front; 2 *c*, the head and thorax sideways; 2 *d*, mandible; 2 *e*, maxilla; 2 *f* and 2 *g*, maxillary lobes; 2 *h*, maxillary palpus; 2 *i*, labium; 2 *k*, antenna; 2 *l*, apex of body.

Genus Bittacus, Latreille.

Sp. 1. *Bittacus affinis*, Westw.

Testaceus, abdominis apice tarsisque posticis obscurioribus, alis pallide fuscescentibus, stigmate fusco, venisque parum fusco tinctis.

Long. corp. lin. 9. Expans. alar. lin. 19½.
Habitat in Brasilia. In Mus. Britann.

Antennæ gracillimæ, apice obscuriores. *Mesothorax* lobis lateralibus dorsi puncto medio nigro. *Abdomen* segmentis basalibus ad apicem cingulo tenuissimo nigro, apiceque incrassato obscuro. *Alæ* pallide fuscescentes, stigmate (cum cellula sequenti) quam in *B. italico* paullo longiore fusco; apiceque alarum fusco paullo obscuriùs tincto; venis nigricantibus fusco nonnihil nebulosis, præsertim ad basin venarum longitudinalium et in venis lineam obliquam pone medium alæ formantibus. *Costa* cum vena mediastina, venâ brevi transversa in alæ medio, connexa; apiceque venæ mediastinæ cum v. postcostali, venâ obliqua connexa; stigmate postice venam unicam emittente; vena ramos posticos venæ postcostalis conjungente, valde obliqua, et fere e basi rami inferioris emissa.

B. italico minor, alis magis coloratis.

B. brasiliensi etiam affinis, differt tamen stigmate fusco, &c.

Sp. 2. *Bittacus punctiger*, Westw.

Fulvescens, femoribus setis paucis nigris e guttis minutis fuscis prodeuntibus armatis, alis paullo latioribus nitidis, flavido-hyalinis, stigmate fere concolori guttisque numerosis paullo obscurioribus.

Long. corp. lin. 8. Expans. alar. lin. 20.

Habitat in Georgia Americæ. In Mus. Britann.

Totum corpus testaceo-fulvum, setis paucis nigris. Pedes graciles; femoribus tibiisque cingulo apicali tenui nigro, illis setulis nigris perpaucis e guttis minutis fuscis prodeuntibus. Tarsi vix obscuriores. Alæ nitidæ, flavido-hyalinæ, guttis numerosis paullo obscurioribus, præsertim ad basin venarum longitudinalium et ad venas transversas, stigmate brevi fere concolori; venis pallidis, stigmate postice venas duas breves emittenti, cellulam parvam subconicam formantibus, vena mediastina cum v. postcostali venâ transversa ante junctionem v. mediastinæ cum costa connexa; vena (ramos duos posticos venæ postcostalis conjungente) recte transversa et e medio cellulæ inferioris emissa.

B. italico minor, alis tamen pro magnitudine latioribus et pulchrioribus.

Sp. 3. *Bittacus pallidipennis*, Westw.

Totus fulvo-luteus, tibiarum apice summo nigricanti, alis pallidissimè luteis unicoloribus, stigmate vix obscuriori.

Long. corp. lin. 7. Expans. alar. lin. 16½.

Locus ignotus. In Mus. Britann.

Totum corpus gracile, unicolor, fulvo-luteum. Antennæ gracillimæ, apicem versus obscuriores. Pedes graciles, femoribus setulis nigris sparsis, tibiis presertim pedum 4 anticorum ad summum apicem nigricantibus. Alæ pallidissime lutescentes (tamen vix coloratæ), unicolores, venis fulvis; stigmate, cellulaque proxima parum obscuriori lutescente; stigmate postice venas duas transversas (cellulam parvam oblongam formantes) emittente, vena mediastina cum v. postcostali vena parva recta (ante junctionem v. mediastinæ cum costa) connexa; vena ramos duos posticos venæ postcostalis conjungente recta et e medio cellulæ inferioris emissa; vena postcostali cum ejus ramo 1mo postico haud in medio connexa.

Sp. 4. *Bittacus pilicornis*, Westw.

Pallide fusco-luteus, pedibus lutescentibus, alis hyalinis, stigmate vix colorato, antennis longe pilosis.

Long. corp. lin. 6. Expans. alar. lin. 18½.

Habitat in America Septentrionali. D. Doubleday.

In Mus. D. Newman [nunc Mus. Britann.]

B. pallidipenni affinis at abunde distinctus. Totum corpus pallide fusco-luteum, capite (pallidiori) thoraceque nitidis; pedibus parum magis lutescentibus, antennis fuscis, longe et dense pilosis. Alæ hyalinæ, vix luteo-tinctæ, stigmate subelongato concolori postice venas duas (cellulam oblongam formantes) emittente; venis fuscis, v. transversis versus apicem alarum fusco nonnihil nebulosis; costa cum vena mediastina venâ parva transversa in medio alæ haud connexa; vena mediastina cum v. postcostali (vena brevi transversa ante junctionem v. mediastinæ cum costa emissa), connexa; vena postcostali ante ejus junctionem cum stigmate, cum ejus ramo 1mo postico vena transversa connexa; vena 1ma hunc ramum cum ramo sequenti conjungenti, subobliqua et e medio cellulæ inferioris emissa.

XXIX. *Descriptions of the* Chrysomelidæ *of Australia, allied to the Genus* Cryptocephalus. *By* W. W. SAUNDERS, Esq., F.L.S., &c.—*continued from p.* 154.

[Read 1st April, 1844, &c.]

IN a paper on the *Chrysomelidæ* of Australia, allied to *Cryptocephalus,* published in the last part of the Transactions of the Entomological Society, I pointed out that the sub-genera, which included the species I had under consideration, formed two divisions, distinguished by the lateral margins of the thorax being smooth in the first division, and dentalate or rough in the second division.

Having described, in the paper above alluded to, the species of the first division, I shall now proceed to describe those of the second, which arrange themselves into three sub-genera, distinguished as follows:

SECOND DIVISION.

(Lateral margins of the thorax dentate, or uneven.)

Antennæ, long	filiform	*Prionopleura.*
	subclavate	*Odontoderes.*
Antennæ, short	subclavate	*Onchosoma.*

PRIONOPLEURA (πριων πλευρα).

Head vertical, immersed in the thorax up to the eyes. *Eyes* reniform, with a deep sinus. *Antennæ* rather wide apart, inserted just in front of the sinus of the eye, as long or longer than the body; ♂, filiform, the six terminal joints somewhat more robust than the others, 11-jointed: first joint robust; second small globose; third and fifth longer than the remainder; the six terminal nearly of equal length; ♀, shorter than body; third, fourth and fifth joints nearly equal, the remaining decreasing in size, and broader. *Thorax* subquadrate, rounded in front, with the lateral margins dentate or rugose, the upper surface rough, with elevated rounded points. *Scutellum* quadrate, elevated behind. *Elytra* as broad as or a little broader than the thorax, longer than broad, the upper surface rugose. *Legs* short, robust. *Tarsi* 4-jointed, the third joint deeply bifid, and thickly padded underneath.

The type of this genus is the *Cryptocephalus rugicollis,* Gray.

First Subdivision.

(Elytra with longitudinal elevated ridges more or less distinctly marked.)

Sp. 1. *Prionopleura bifasciata*, Hope. (Pl. XV. fig. 1, and details.)

Head rufous brown, with the portion above the insertion of the antennæ black, except two small lunate spots on the inner margin of the eyes; the forehead covered with small elevated points, and short silvery hairs. Eyes black. Antennæ black, with the second, third and fourth joints somewhat rufous, particularly beneath. Thorax rufous brown, with a black central longitudinal patch extending from margin to margin, somewhat diamond-shaped, and two lateral longitudinal black patches, one on each side, somewhat lunate, curving inwards. Scutellum slightly elevated behind, black, shining. Elytra rufous brown, deeply and coarsely punctured, with eight somewhat elevated longitudinal ridges faintly marked, having two broad black transverse bands, the first near the thorax, which narrows slightly in the middle, and extends into the shoulders, the second a little below the middle. Suture black. Under side of body dull rufous brown, covered with short, stiff, widely spread adpressed silvery hairs, the mesosternum dull black. Femora black, with the basal portions rufous brown. Tibiæ rufous brown, with the apices black. Tarsi black.

Length $\frac{30}{100}$ inch.

Habitat New Holland.

In the Collection of the Rev. F. W. Hope.

A very distinct and pretty species.

Fig. 1*a*, antenna; 1*b*, prothorax; 1*c*, leg.

Sp. 2. *Prionopleura crucicolle*. (*Cryptocephalus crucicollis*, Boisd.)

Head chesnut brown, covered with small raised points, having a black transverse mark across the forehead, close to the margin of the thorax, the centre of which is produced forwards into a point. Antennæ chesnut brown, rather robust. Thorax deep rufous brown, with a narrow, transverse, black band across the centre, produced in the middle, backwards and forwards, so as to form the short arms of a cross. Scutellum black, shining. Elytra deep rufous brown, deeply and coarsely punctured, with five distinctly elevated longitudinal ridges, and three alternate somewhat obscure ridges on the back of each, marked with three longitudinal black patches at the base, between the elevated ridges, extending about one-fourth the length of the elytra, and an irregular transverse black band across the middle, which in some varieties is joined by the inner basal black patch. Suture black. Under side of body rufous brown, covered with short, silvery, widely spread hairs. Legs and tarsi rufous brown; femora marked with a black line along the upper surface.

Length $\frac{30}{100}$ inch.

Habitat New Holland and Van Diemen's Land.

In the Collections of J. O. Westwood, Esq. and the Rev. F. W. Hope.

Sp. 3. *Prionopleura Hopei*, mihi.

Head rufous brown, with a broad black band down the forehead, between the eyes, and an oval spot of the same colour in front, on a line with the antennæ. Eyes black. Antennæ rather longer than the body, deep rufous brown, with the upper surface of the first joint, the whole of the terminal joint, and apex of the last joint but one, black. Thorax black, with a narrow margin of deep rufous brown, except just in front of the scutellum, where the black reaches the margin. Scutellum black, shining, smooth. Elytra deep rufous brown, deeply and coarsely punctured, with eight slightly elevated ridges, giving a rugose appearance, having two black patches at the base, one on the shoulders, and the other larger near the scutellum, which is prolonged posteriorly alongside the suture, and joins an irregular black transverse band, which crosses the middle. Under side of the body dull pitchy brown, with lighter shades, covered with short silvery adpressed hairs. Legs deep rufous brown; the femora with a black line along the upper side; tibiæ, with the apices, black. Tarsi black.

Length $\frac{22}{100}$ inch.

Habitat Van Diemen's Land.

In the Collections of the Rev. F. W. Hope and J. O. Westwood, Esq.

This species is allied to the preceding, but abundantly differs in the colour of the head, thorax and legs, and in the smaller size.

Sp. 4. *Prionopleura crux-nigra*, Hope, MSS.

Head dark rufous brown, deeply immersed in the thorax, sprinkled with short silvery hairs; parts of the mouth yellow. Eyes black. Antennæ deep rufous brown, the terminal joint black.

Thorax very dark rufous brown, sprinkled with short silvery hairs, with a black transverse band across the centre, which is produced in the middle, backwards and forwards, so as to form the short arms of a cross. Elytra deeply and coarsely punctured, with a few short silvery hairs near the apex; with nine longitudinal ridges, the five nearest the suture distinctly defined; dark rufous brown, with a narrow longitudinal black streak on the shoulders, and a broad sickle-shaped black band, commencing near the scutellum, which extends down the suture to near the middle, and thence curving in a transverse direction towards the external margin, along which it runs nearly to the shoulders. Under side of the body pitchy brown, with short adpressed silvery hairs. Legs deep rufous brown; femora with a black line along the upper surface. Tarsi rufous brown.

Length $\frac{25}{100}$ inch.

Habitat New Holland.

In the Collection of the Rev. F. W. Hope.

Another species nearly allied to *P. crucicollis*, but chiefly differing in the position of the markings on the elytra.

Sp. 5. *Prionopleura flavocincta*, mihi.

Head rufous brown, with a black transverse mark across the hinder part of the forehead. Eyes black. Antennæ rufous brown, with the two terminal joints black, about the length of the body. Thorax bright rufous brown, with a broad transverse central band produced in the middle, giving it somewhat a diamond shape. Scutellum dark brown. Elytra closely and minutely punctured, with nine distinct somewhat elevated ridges, deep rufous brown, crossed somewhat above the middle with a broad orange band, margined on each side with an interrupted black line. Under side of the body rufous brown, covered with short silvery adpressed hairs, the mesosternum having a large central triangular black patch. Legs and tarsi rufous brown; each femur with a black patch on the upper surface.

Length $\frac{20}{100}$ inch.

Habitat New Holland. Capt. Roe.

In the Collection of the Rev. F. W. Hope.

A small and well marked species.

SECOND SUBDIVISION.

(Elytra without elevated ridges.)

Sp. 6. *Prionopleura monochroa,* Bois.

Head dull orange, with a transverse line across the vertex, and a line down the face, reaching from the vertex to between the eyes, black. Antennæ as long as the body in the ♂, dull ochre, with the upper parts of the first and last joints black. Thorax and elytra uniform dull ochre, deeply and irregularly punctured, so as to give a rugose appearance to the surface. Scutellum small, black, quadrate, shining. Under side of body dull ochre, covered with short adpressed whitish hairs. Legs dull ochre, the tibiæ having a dark line along the upper surface. Tarsi dusky.

Length $\frac{40}{100}$ inch.

In the Cabinet of the Rev. F. W. Hope.

Habitat Australia.

Sp. 7. *Prionopleura cognata,* Hope, MSS.

Head yellowish amber brown, covered with small paler tubercles. Labrum yellow. Eyes black. Antennæ two-thirds of the length of the body, yellowish brown, with the first joint black. Thorax with the lateral margins slightly dentate, amber brown, covered with somewhat large yellow tubercles, and having an obscure longitudinal narrow black line along the vertex. Scutellum quadrate, elevated posteriorly, ochre yellow. Elytra dull ochre yellow, deeply and irregularly punctured, with an ill-defined black band extending nearly across, a litttle below the centre, and extending upwards to near the scutellum, leaving the shoulders and lateral margins free. Under side of body yellow brown, covered with short adpressed pale yellow hairs. Legs dull reddish brown, with the femora beneath, and apices of the tibiæ externally black brown. Tarsi reddish brown, robust.

Length $\frac{30}{100}$ inch; width $\frac{18}{100}$.

Habitat Van Diemen's Land.

In my own Cabinet and that of the Rev. F. W. Hope.

Sp. 8. *Prionopleura rugicollis,* Gray.

Head pale dull orange, sparingly clothed with yellow hairs, with a black streak down the face, commencing on the vertex, and an angular black line reaching across from the bases of the antennæ, and forming with the former a Y inverted. Antennæ as long as the body, dull rufous brown, with the upper surface of the first joint black. Thorax with the lateral margins strongly dentate, covered with small pustules, intermixed with short shining yellow hairs; dull orange, with a broad longitudinal, somewhat lozenge-shaped, black brown patch along the whole length on the vertex. Scutellum dark chesnut brown, elevated behind, shining, somewhat quadrate, and strongly keeled. Elytra deeply and rugosely punctured, dull orange, with an obscure broad dark brown transverse fascia above the centre, and some obscure dark brown markings a little before the apex. Under side of body dull ochre yellow, clothed with very short whitish hairs. Legs dull chesnut brown, clothed with hairs of the same character.

Length $\frac{5}{20}$ inch.
Habitat New South Wales.
In the Cabinet of the Rev. F. W. Hope.

The above description is drawn from a male insect. The female differs in having considerably shorter and more robust antennæ; is larger in size; has the broad transverse fascia of the elytra more clearly defined, and has the under side of the body darker.

Length $\frac{35}{100}$ inch.
Habitat New South Wales.
In the Cabinet of the Rev. F. W. Hope.

Genus Odontoderes, Chevrolat, MSS.

Head immersed in the thorax up to the eyes. *Antennæ* wide apart, inserted just before the sinus of the eyes, subclavate, not quite so long as the body, 11-jointed: first joint pyriform; second small, globose; third, fourth and fifth long and slender, the fifth somewhat the longest; the remaining joints gradually decreasing in length but becoming more robust, and forming a kind of elongate clava, with the joints projecting slightly internally. *Thorax* nearly as broad as the elytra, transverse, rounded at the sides, with the lateral margins strongly and regularly dentate, convex above. *Scutellum* quadrate, elevated posteriorly. *Elytra* half as broad again as long, rounded at the apex. *Legs* moderate. *Tarsi* robust, the joints nearly equal in length.

Odontoderes Australis, Boisduval. (Plate XV. fig. 2, and details.)

Head black, rugosely punctured, with two small yellow marks on the face, situated close to the upper part of each eye. Antennæ and eyes black. Thorax black, covered with small regular tubercles. Scutellum smooth, quadrate, shining black. Elytra yellow, shining, regularly and deeply punctured, each marked with three broad longitudinal black bands: the first somewhat triangular in shape, commencing near the scutellum and running half way along the suture; the second commencing near the shoulder and running to near the apex parallel to the first band and the suture; the third joining the second at the shoulder and running parallel to the lateral margin until it joins the second near the apex, enclosing with it an oblong oval yellow space. Under side of body black, clothed with short adpressed whitish hairs. Legs and tarsi black.

Length $\frac{30}{100}$ inch.

Habitat Australia.

In the Cabinets of the Rev. F. W. Hope, Capt. Parry, &c.

Theie is a little variation of marking in some specimens, caused by the second longitudinal band of the elytra meeting the sutural band a little below the middle, as shown in the figure accompanying this description.

Fig. 2 *a*, antenna; 2 *b*, fore feet.

ONCHOSOMA, New Genus (Ογκος ωμος).

Head vertical, immersed in the thorax nearly up to the eyes. *Antennæ* short, a little longer than the thorax, 11-jointed: first joint long, stout, somewhat pyriform; second orbicular; third, fourth and fifth slender, rather long, equal in length; the remaining joints gradually becoming shorter, but at the same time more robust, and forming an elongate club. *Thorax* transverse, with the lateral margins dentate or rough, and having two more or less elevated protuberances on the upper surface, one on each side of the central line. *Scutellum* subquadrate, much narrowed and somewhat elevated behind. *Elytra* with the surface rugose, short, rather longer than broad, with the apices rounded. *Legs* short, robust. *Tarsi* robust, 4-jointed: first and second joints transverse; third longer, deeply bilobed; fourth joint narrow, laying in the cleft of the third, and barely exceeding it in length.

The species of this genus are easily distinguished by the two protuberances on the upper surface of the thorax, which gives them an unusual appearance among their congeners the *Cryptocephalides*. The species are very uniform in size and in the brown tints of their colours. The genus *Brachycaulus*, described by Monsieur Fermaire, in the "Annales de la Société Entomologique de France, 1843, premier trimestre, p. 13," appears to be a very near approach to *Onchosoma* and may prove identical, in which case *Brachycaulus* having the priority must replace the former. Monsieur Fermaire describes the antennæ as being "en scie dans la dernière partie de leur longueur," a character I have been unable to detect, and which, combined with other differences, makes me hesitate to apply the name of *Brachycaulus* to the species I am about to describe.

Sp. 1. *Onchosoma Ewingii*, W. W. S.

Head dark amber brown, rugose, with minute rounded elevations, interspersed with a few sandy hairs; mouth rufous. Antennæ rufous brown. Eyes black. Thorax with the lateral margins strongly crenate, having two elevated protuberances on the upper surface, one on each side of the central line, each protuberance with a fovea on the external side; dark amber brown, with a black round spot margined with dull yellow in each fovea. Scutellum subquadrate, narrowed behind, dark amber brown, clothed with whitish adpressed hairs. Elytra rugose, with rounded elevations and deep punctures interspersed with whitish hairs, having a row of small protuberances at the base parallel with the thorax; dark amber brown, with the hinder half dull ochre, punctured with brown, and with six or seven elevated lumps of the same colour near the apex, leaving an oblique fascia pointing forwards about the middle. Under side of body chesnut brown, minutely furrowed longitudinally, and having an orange spot between the insertion of the hinder legs. Legs robust, dark chesnut brown, regularly punctured. Tarsi reddish brown.

Length $\frac{25}{100}$ inch.

Native of Van Diemen's Land.

In the Cabinets of J. O. Westwood, Esq., and Capt. Parry.

The first specimens of this species which were sent to this country were taken in Van Diemen's Land by Mr. Ewing, after whom I have named the species.

Sp. 2. *Onchosoma dorsalis*, W. W. S. (Pl. XV. fig. 3, and details.)

Head dark amber brown, deeply punctured; mouth light chesnut. Antennæ light rufous brown, with the enlarged joints somewhat darker. Eyes black. Thorax covered with minute rounded elevations, with the lateral margins strongly dentate, and having two elevated protuberances on the upper surface, one on each side of the central line, black, with the lateral margins, an indistinct band along the front, and a short band from the apex of each protuberance to the posterior margin, dull rufous. Scutellum subquadrate, much narrowed behind, punctured, dark amber brown. Elytra deeply and irregularly punctured, marked with a kind of imperfect network of elevated nervures, and having a row of low protuberances along the base; dark amber brown, with a broad ochraceous band, commencing about the middle of the base and running in a curved direction to the lateral margin, and thence onwards until it reaches the suture a little below the middle, surrounding a large distinctly marked triangular area of the ground colour. Apex dull ochraceous. Under side of body dusky brown, minutely punctured and covered with short yellowish adpressed hairs. Legs robust, punctured, and tibiæ grooved longitudinally, dark rufous brown. Tarsi somewhat lighter.

Length $\frac{25}{100}$ inch.

Habitat New Holland.

In the Cabinet of the Rev. F. W. Hope.

This I consider the typical species, and from which the generic description and figure were taken.

Fig. 3 *a*, antenna; 3 *b*, body seen sideways; 3 *c*, extremity of anterior tibia and tarsus.

Sp. 3. *Onchosoma Tasmanica*, W. W. S.

Head black brown, rugosely punctured, with a small round chesnut spot on the face between the eyes. Scutellum light chesnut. Eyes black. Thorax rugose, with small rounded elevations, interspersed with a few short sandy coloured hairs, having two rounded protuberances on the upper surface, one on each side of the central line; dull rufous, with a round black spot on the outer side of each protuberance, and an ill-defined black band extending from the anterior margin over each protuberance to the posterior margin. Scutellum subquadrate, much narrowed behind, dull rufous, covered with short sandy hairs. Elytra deeply and rugosely punctured, with irregular elevated longitudinal nervures, and two elevations near the base, one near the shoulder and the other about midway between the latter and the scutellum, black, with a broad rufous band across the middle, almost vanishing at the suture, and another band of the same colour running longitudinally from the latter to the base along the middle; apex dull rufous. Under side of body corneous yellow, with short adpressed hairs. Legs robust, very dark chesnut, punctured, and covered with short sandy hairs. Tarsi above nearly black.

Length $\frac{20}{100}$ inch.

Native of Van Diemen's Land.

In my own Collection.

Sp. 4. *Onchosoma foveocollis*, Hope, MSS.

Head dark amber brown, rugose, sparingly covered with short sandy hairs. Antennæ dull rufous, robust. Thorax rugosely punctured, the punctures interspersed with sandy hairs, with the lateral margins dentate, and having two protuberances on the upper surface, one on each side of the central line; dark amber brown, inclining to rufous, on the lateral margins, with three round black spots bordered with sandy brown, one on the exterior side of each protuberance and one in the hollow between the thoracic elevations. Scutellum subquadrate, narrowed posteriorly; dull yellow, with the base black. Elytra rugosely punctured, with irregular longitudinal elevated nervures, and two elevations at the base, one near the shoulder and the other between that and the scutellum; dark amber brown, with an obsolete rufous brown fascia across the centre, and the apex of the same colour, the latter divided from the former by a row of ill-defined dark amber spots. Under side of body pale yellow, dusky towards the exterior margin, clothed with short adpressed whitish hairs. Legs robust, clothed with short whitish hairs; dark castaneous brown. Tarsi rather darker.

Length $\frac{18}{100}$ inch.

Native of Van Diemen's Land.

In the Cabinet of the Rev. F. W. Hope.

There is a variety of this species in Capt. Parry's collection, in which the dark markings on the elytra have almost vanished, merely leaving a black spot on the shoulder and a few irregular spots of dark brown about the base and apex. This species has the third, fourth and fifth joints of the antennæ shorter and more robust than in the typical species.

Sp. 5. *Onchosoma Klugii*, Hope, MSS.

Head yellow brown, with a large triangular chesnut spot on the upper part of the face, and a wavy line of the same colour beneath, joining the lower extremity of the eyes. Antennæ light chesnut brown. Thorax rugose, with minute rounded elevations, having the lateral margins rough, and two elevated somewhat pointed protuberances on the upper surface, one on either side of the central line; yellow brown, with the protuberances dark chesnut, a narrow longitudinal line of the ground colour being left between them. Scutellum subquadrate, narrowed behind; yellow brown, with the base chesnut. Elytra very deeply and coarsely punctured, with irregular strongly elevated longitudinal nervures;

yellow brown, with a broad chesnut band extending from the shoulders to a little above the middle of the suture, and some irregular markings of the same colour towards the apex, leaving a broad band of the ground colour across the middle. Under side of the body chesnut brown, punctured. Legs dark chesnut brown, punctured. Tarsi of the same colour.

Length $\frac{22}{100}$ inch.

Native of New Holland.

In the Cabinet of the Rev. F. W. Hope.

Sp. 6. *Onchosoma rufescens*, W. W. S.

Head punctured, dark amber brown, with some ill-defined rufous markings on the face. Antennæ reddish brown. Thorax rugosely punctured, with the lateral margins strongly crenate, and having two rounded protuberances on the upper surface, one on each side of the central line; chesnut brown, with a broad black band passing from the anterior to the posterior margin over each protuberance, and three rounded large black spots margined with castaneous, one the external side of each protuberance and one in the hollow between them. Scutellum subquadrate, narrowed behind, punctured, castaneous brown. Elytra deeply and rugosely punctured, with the longitudinal nervures but very indistinct, and having two slight elevations at the base, one on the shoulders and the other between that and the scutellum; dark chesnut brown, with a black patch on the shoulder, and an indistinct broad blackish band running along the basal half of the suture. Under side of body light reddish brown. Legs robust, punctured, chesnut brown, with a large black patch on the outer and inner sides of each femur a little below the middle. Tibiæ blackish towards the apex. Tarsi deep chesnut.

Length $\frac{25}{100}$ inch.

In the Cabinet of Capt. Parry.

Habitat New Holland.

This is a species distinct in the sculpture of the elytra and markings; but owing to the specimen having been gummed it is difficult to make out the original colour.

XXX. *Descriptions of various new Species of* Buprestidæ *from Australia. By the* Rev. F. W. HOPE.

[Read July 1, 1844.]

PERHAPS no two groups of insects exhibit the wonderfully rapid increase of Entomology more than the *Cetoniadæ* and *Buprestidæ;* the former have lately occupied much of the attention of the continental writers, and the latter have not altogether been disregarded. To the exertions of the Comte de Castelnau, Messieurs Gory and Solier of Marseilles, we are indebted for the descriptions of a vast number of species; and although I myself some few years back gave a synopsis of the species belonging to New Holland, and have since added various others, I am now enabled, from some valuable arrivals from Capt. Roe, of Swan River, and Mr. Fortnum, of Adelaide, to add many others; more than fifty species have reached me, the major part of them are now described; and if the whole are not now given, it is merely because some of them are too imperfect to describe, and others may be regarded as too closely allied to species, or varieties of others, previously described.

I regret to add that two of the most beautiful have nearly been devoured by ants, but I yet expect to receive others in a more perfect state, when they will be figured.

From examining a vast number of individuals from the different settlements, I think it will eventually be found, that although some species range over nearly the whole of that continent, yet the localities of Swan River, Port Essington, Sidney and Adelaide, have each of them a particular Entomological Fauna, and it is worthy of remark that, in many instances, each locality offers peculiar species greatly resembling those of other and opposite parts of the island.

Mr. MacLeay informs me that he has amassed a great number of new species, and it is to be hoped that, residing in the metropolitan region of *Buprestis*, his valuable observations on their larvæ and habits may soon be committed to the press. If, in addition to the above species now described, several others which are not yet pinned should be found in the mass of insects lately received, they can be added in a future supplement.

Sp. 1. *Chrysodema gigas*, Hope.

Viridis, thorace ferè quadrato, rugoso-punctato; elytris qua-

dricostatis, marginibusque externis elevatis, tarsisque infra flavis."

Long. lin. 19, lat. lin. 6½.

Caput fere rotundatum, clypeo flavo medio excavatum et punctatum. Thorax fere quadratus, anticè parum angustior, angulis anticis paullo protensis, disco viridi-aureo purpurato et rugoso-punctulato, tuberculis quibusdam nitidis, lineâ longitudinale mediâ haud valde elevatâ. Elytra viridi-aurea, quatuor lineis elevatis, quintâque suturali ante medium disci interruptâ. Scutellum posticè rotundatum, violaceum, anticeque foveolatum. Apex elytrorum marginibus parum denticulatis. Corpus infra viride punctatum, annulis abdominis posticè violaceis. Pedes viridi-purpurascentes tarsisque infra flavis.

This insect was lately sent me from Swan River, and is allied to *Chrysodema helopoides* of Boisduval. It appears to be the largest species of the genus, and is consequently denominated

Sp. 2. *Stigmodera signaticollis*, Hope.

Flava, thorace viridi-violaceo, utrinque flavo-maculato, elytris tribus fasciis violaceis, pedibus viridibus.

Long. lin. 14, lat. lin. 6.

Caput viride punctatum. Thorax violaceus, punctatus, maculâ irregulari flavâ utrinque positâ. Elytra flava striato-punctata, ad basin læte violacea, subrugosa, duabus fasciis violaceis cincta, apicibusque concoloribus. Corpus infra flavum, pectore annulisque abdominis posticè viridibus et nitidis, antennis pedibusque concoloribus.

This beautiful insect is allied to *Conognatha Fortnumi*, Hope, and it inhabits the vicinity of the Swan River.

Sp. 3. *Stigmodera Mitchellii*, Hope.

Flava, thorace olivaceo-æneo, marginibus croceis, fossulâ utrinque parum distinctâ, elytrisque violaceis et quatuor fasciis flavis ornatis; corpore infra cyaneo, pedibusque concoloribus.

Long. lin. 11½, lat. lin. 5.

Caput æneum punctatum, antennis cyaneis. Thorax atro-æneus, fossula utrinque impressa, marginibus latè-flavis. Elytra violacea, quadrifasciata, prima ad basin lata; 2da ante medium disci haud ad suturam extensâ; 3tia latiori, irre-

gulare, et ultimâ ante apicem posita fere lunulata. Corpus infra cyaneum, lateribus thoracis et abdominis læte flavis. Pedes cyanei.

This magnificent insect is named in honour of Sir —— Mitchell, the Australian traveller, and it inhabits the neighbourhood of the Swan River.

Sp. 4. *Stigmodera sanguinosa*, Hope.

Ænea, thorace nigricanti, elytris sanguineis, punctis viridibus fortiter excavatis; corpore infra aurato, æneis griseisque pilis obsito, pedibus antennisque cupreis.

Long. lin. 10, lat. lin. 4.

Caput antice excavatum, pilisque flavis obsitum. Thorax nigro-æneus, punctatus. Elytra sanguineo-rubra, punctis aurato-viridibus fortiter excavatis apicibusque atris. Corpus infra albido-pilosum et cupreum, antennis pedibusque concoloribus.

This insect approaches to *Stigmodera Goryi*, Hope, but cannot be considered as a variety of that insect. It was captured at the Swan River by Captain Roe.

Sp. 5. *Stigmodera hæmatica*, Hope.

Sanguinea, capite atro-æneo, thorace in medio nigro-maculato; corpore infra sanguinoso, pectore pedibusque cyaneis.

Long. lin. 15, lat. lin. 6.

Caput nigro-æneum, pubescens. Thorax punctatus, rubro-sanguineus, maculâ mediâ longitudinali atra margineque postico concolore. Elytra tota fere sanguinea, striato-punctata, apicibus exceptis violaceis. Corpus infra sanguineum, pectore pedibusque cyaneis.

The above insect inhabits the vicinity of the Swan River.

Sp. 6. *Stigmodera Parryi.*

Brunneo-rubra, thorace æneo rubroque colore variegato, elytris brunneo-rubris; corpore infra eroso-punctato et æneo, pedibusque concoloribus.

Long. lin. 14½, lat. lin. 6.

Caput æneum et pubescens. Thorax rubro-brunneus, variolisque æneis punctis erosus. Elytra striato-punctata, corpore subtus valde punctato et æneo, pedibusque concoloribus.

This insect I received from Captain Parry, in honour of whom it is named. It is from New Holland, but the exact locality is not known.

Sp. 7. *Stigmodera Cyanura*, Hope.

Flava, thorace viridi-nitido, maculâ flavâ parvâ utrinque positâ, elytris flavis, apicibusque latè cyaneis; corpore infra flavo viridique colore variegato.

Long. lin. 11, lat. lin. 4½.

Caput viride punctulatum. Thorax læte viridis, sub lente tenuissimè punctatus, maculâ irregulari flavâ parvâ utrinque ad latera positâ. Scutellum viride, glabrum. Elytra flava striato-punctata, apicibus fasciâ lata violacea ornatis. Corpus infra læte flavum, annulis posticis abdominis viridibus, nitidis maculaque virescente utrinque posita, binis ultimis annulis autem flavis. Pedes aurato-virides.

This species is also from the vicinity of Swan River, and was collected by Captain Roe.

Sp. 8. *Stigmodera Hoffmanseggii*, Hope.

Violacea, thorace æneo, elytris purpurascentibus striatis, apice subserratis, humeris flavo-maculatis fasciisque duabus concoloribus ornatis; corpore infra chalybeo-violaceo, pedibusque æneis.

Long. lin. 9, lat. lin. 4.

Caput æneum, in medio fortiter impressum. Thorax olivaceo-æneus, creberrime punctulatus. Elytra violacea, humeris macula flava fere quadrata notatis, fasciisque binis concoloribus haud suturam attingentibus. Apex elytrorum subrugosus punctatus. Corpus infra chalybeo-violaceum, pectore virescente, annulisque abdominis postice concoloribus. Pedes ænei, tarsis viridiori colore saturatis.

This insect is allied to *C. Klugii* of Hope, and inhabits the neighbourhood of the Swan River. It is named in honour of Count Hoffmansegg, a celebrated Entomologist, of Berlin. He was, I believe, the predecessor of M. Klug.

Sp. 9. *Stigmodera perplexa*, Hope.

Ænea, thorace nigricanti, elytris flavis, tribus fasciis atro-violaceis signatis; corpore infra atro-æneo, pedibus concoloribus.

Long. lin. 7, lat. lin. 3.

Affinis *St. Burchellii*, Hope, at multo major et convexior.

Caput æneum, punctulatum. Thorax obscure æneus, creberrime punctatus. Elytra atro-violacea, punctatissima, margi-

nibus ad basin æneis; fascia prima flava, in medio, lata, ad angulos autem attenuata, 2da vix ad suturam extensa, 3tia margine apicali in lunulam efformata. Apex bidentatus. Corpus infra obscure æneum et pubescens, pedibus antennisque concoloribus.

The above insect was received from Western Australia by Mr. Gould; it is closely allied to a species which I formerly named after Mr. Burchell, but at once may be distinguished from that insect, as the elytra have only two spines at the apex, whereas Mr. Burchell's insect has three.

Sp. 10. *Stigmodera assimilis*, Hope.

Violacea, thorace olivaceo-æneo, elytris tribus fasciis flavis; corpore infra purpurascente, pedibus concoloribus.

Long. lin. 5½, lat. lin. 2.

Affinis *Stigmoderæ apicali*, Hope, at paullo latior. Caput cyaneum, thorace violaceo. Elytra violacea, ternis fasciis flavis signata, fasciis fortiter punctulatis. Corpus infra læte violaceum, pedibus concoloribus.

The above species was received from Port Philip, and is closely allied to *St. apicalis* alluded to above. There is a remarkable variety of it from the same locality, which has the elytra of a greenish tinge, and the first fascia continued along the entire base of the elytra, whereas in other specimens the first fascia is generally interrupted.

Sp. 11. *Stigmodera Adelaidæ*, Hope.

Purpurascens, thorace flavo-marginato, disco viridi creberrime punctulato, elytris violaceis et decem-maculatis; corpore infra flavo, pedibus violaceis.

Long. lin. 5, lat. lin. 2.

Affinis *Stigmoderæ versicolori*, Laporte, at longior et latior. Caput viride, fronte maculâ flavâ rotundatâ parvâ signato. Thorax viridis, punctulatus, marginibus lateralibus flavis. Elytra purpurea, disco octo maculis croceis signato, binis aliis ad latera positis. Corpus infra læte flavum; segmentis abdominis postice pedibusque violaceis.

The above species is from the settlement at Adelaide, and is allied to *St. versicolor*. Laporte, described as from Swan River. It may here be remarked, that the different settlements of Australia afford many insects closely resembling each other, and which,

when examined carefully, I think will be found to be distinct. If such is the case, the Entomology of Australia possesses an uniformity of character, in the representative species of each locality, which has not yet I believe been noticed.

Sp. 12. *Stigmodera purpurea*, Hope.

Purpurea, thorace lateribus flavo-marginatis, elytrisque violaceis et octo maculis notatis, corpore infra flavo et violaceo.

Long. lin. 4, lat. lin. 1½.

Caput antice violaceum, punctatum. Thorax purpurascens, punctatus, lateribus flavis. Elytra purpurea, binis lineis flavis ad basin, binisque aliis ad latera positis, quatuorque maculis flavis parvis in disco notatis. Corpus infra flavum, pectore purpureo segmentisque abdominis postice violaceis pedibusque concoloribus.

Received by Mr. Gould from Western Australia. It is allied to *St. flavopicta* of Gory.

Sp. 13. *Stigmodera hilaris*, Hope.

Æruginosa, elytris miniatis, humeris viridibus maculisque aliis concoloribus per discum positis, corpore infra lætè virescenti.

Long. lin. 3, lat. lin. 1.

Caput aurato-viride, punctatum. Thorax concolor et crebre punctulatus. Elytra rubro-miniata, maculâ mediâ commune viride ad scutellum positâ, humeris concoloribus, duabusque aliis irregularibus fere in fascias dispositis; apicibus atris et bispinosis. Corpus infra læte viride, pedibus concoloribus.

This lovely insect was received from Port Philip.

Sp. 14. *Stigmodera Saundersii*, Hope.

Atra, elytris miniatis, ad basin 4-maculatis, maculâ mediâ rotundatâ nigrâ apicibusque nigris.

Long. lin. 5, lat. lin. 2.

Caput rufo-æneum. Thorax atro-velutinus, lateribus subrotundis, creberrime punctulatis. Elytra miniata, humeris externis atro-notatis, macula scutellata commune, altera in medio disci posita, apicibusque atris. Corpus infra cyaneum, punctatum, pectore virescenti, pedibusque viridibus.

This singularly marked insect was lately sent me by Mr. Fortnum from the Adelaide settlement; it is named in honour of Mr.

Saunders, the late president of the Entomological Society; some specimens vary in size and are much smaller than the individual described.

Sp. 15. *Buprestes albivittis*, Hope.

Ænea, thorace punctulato, lateribus externis albis, elytrisque æneis, vittâ albidâ laterali notatis.

Long. lin. 12½, lat. lin. 4.

Caput magnum, viridi-æneum et punctatum. Thorax cupreo-æneus, medio disci crebre punctulatus, lateribus albidis et subrugosis. Elytra serrata, striato-punctata, punctis parum distinctis; vitta lateralis alba longitudinalis e humeris ad apicem extendit. Corpus infra roseo-cupreum, pedibus concoloribus.

The above insect inhabits Van Diemen's Land, and belongs to Monsieur Gory's genus *Buprestis*.

Sp. 16. *Buprestis pyritosa*, Hope.

Igneo-cuprea, thorace flammanti punctato, elytris subviolaceis, maculis fasciisque duabus aureis notatis, pedibusque viridibus.

Long. lin. 5, lat. lin. 2.

Caput viridi-auratum, punctulatum, antennis nigricantibus, primis articulis autem viridibus. Thorax læte cupreus et iridescens et punctatum. Elytra violacea, serrata, striato-punctata, binis fasciis posticis auratis nitidis; macula flammanti splendidâ post scutellum positâ, humeris et lateribus ad medium disci auro-nitentibus. Corpus infra læte auratum punctatum, binis ultimis segmentis abdominis subcyaneis.

This splendid insect was received from Western Australia.

Sp. 17. *Buprestis verna*, Hope.

Viridis, capite cupreo-æneo, thorace elytrisque aurato-virescentibus et punctatis; corpore subtùs roseo-cupreo et pubescenti, pedibusque concoloribus.

Long. lin. 4½, lat. lin. 1½.

Affinis *Bup. viridipenni*, Hope, at minor. Caput cupreo-æneum, punctatum, oculis nigris; totum corpus supra viride et punctatum, scutello excepto roseo-cupreo marginibusque externis elytrorum concoloribus. Corpus infra roseo-cupreum,

segmentis abdominis albidis capillis obsitis. Pedes cuprei et pubescentes.

The above insect was lately sent to this country by Mr. Fortnum from Adelaide.

Sp. 18. *Buprestis Porteri*, Hope.

Cuprea, capite obscurè æneo, scutello aureo; corpore subtùs aurato-æneo et pubescenti.

Long. lin. 3, lat. lin. 1.

Caput obscurè æneum, punctatum, antennis cyaneis. Totum corpus supra roseo-cupreum et punctulatum, infra aurato-æneum, pectore virescenti. Pedes ænei et pubescentes.

This insect comes from the vicinity of Port Philip and is named after a young naturalist now collecting actively in that locality, it is one of the smallest species known.

Sp. 19. *Buprestis Helenæ*, Hope.

Nigro-ænea, thorace concolore, maculis quatuor irregularibus elytrorum; corpore subtùs æneo, pedibus concoloribus.

Long. lin. 6½, lat. lin. 3.

Caput æneum et punctatum, antennis concoloribus. Thorax atro-æneum, violaceo colore tinctum, et subtilissime punctulatum. Elytra striato-punctata, nigra, maculâ flavâ ad scutellum positâ; 2da irregulari, media, tertiâ fere fasciata ad suturum haud extensa at ad marginem et apicem conjuncta. Corpus infra æneum et pubescens, pedibus concoloribus.

This insect was first noticed in my collection as a novelty by a female Entomologist, and as her sirname was objected to I can only give the christian one. It was sent to me by Captain Roe from Swan River.

Sp. 20. *Buprestis lanuginosa*, Hope.

Affinis præcedenti. Nigro-violacea, thorace cupreo, elytris maculis tribus aurantiacis, marginibus apicibusque sanguineis; corpore subtùs æneo, lanugine albidâ obsito.

Long. lin. 6½, lat. lin. 3.

Caput æneum, medio foveolatum. Thorax cupreus, lateribus externis capillis albidis obsitis. Elytra violacea, striato-punctata, ad basin maculâ fere quadratâ flavâ notata; 2da mediâ irregulari tertiâque fere lunulatâ; lateribus externis sanguineis, apicibusque 2-dentatis. Corpus infra æneum, pectore segmentisque abdominis lanugine albida aspersis.

This insect was also received from Captain Roe of the Swan River settlement.

Sp. 21. *Chrysobothris Australasiæ*, Hope.

Nigro-ænea, thorace pallidiori colore æneo, elytris nigricantibus, punctis duobus baseos fortiter impressis et alteris in medio cupreo-auratis; corpore subtùs æneo, lateribus sublanuginosis.

Long. lin. 6, lat. lin. 2½.

Caput cupreo-æneum, punctulatum. Thorax convexus, rugosus, antice fossula utrinque parum impressa. Elytra nigro-ænea, quatuor lineis elevatis, binis fossulis atris ad basin positis, binisque aliis in medio cupreo-aureis. Corpus infra æneum, punctatum, pedibus concoloribus.

The above insect was sent to me from Swan River by Captain Roe.

Sp. 22. *Anthaxia Fortnumi*, Hope.

Cyanea, thorace concolori, lateribus aurato-punctatis; elytris ad scutellum auro-fulgentibus, maculâ irregulari aureâ post humeros locatâ; corpore subtus violaceo, pedibus concoloribus.

Long. lin. 3, lat. lin. 1.

Caput cyaneum, fronte foveâ impressâ viride. Thorax violaceo-cyaneus, angulis lateralibus posticis læte-aureis et punctatis, margine posticè concolori. Elytra violacea, ad basin elevata, linea virescenti tenua notata, maculâ aureâ post scutellum in singulo positâ, alterâque obliquâ infra humeros conspicuâ. Corpus infra cyaneum, femoribus viridibus, tibiisque violaceis.

The above lovely insect is named in honour of Mr. Fortnum, who has devoted much of his time to the study of Australian Entomology. This is, I believe, the first notice of a true *Anthaxia* being found in New Holland.

Sp. 23. *Anthaxia Adelaidæ*.

Nigro-ænea, thorace cupreo-æneo, subtilissimè punctato, elytris nigricantibus violaceoque colore tinctis. Corpus infra atro-æneum, antennis pedibusque concoloribus.

Long. lin. 1¼, lat. lin. ½.

The above species inhabits Adelaide.

Sp. 24. *Acmæodera nodosa*, Hope.

Nigra, thorace nodoso et tuberculato, elytris flavis maculis minutis variis variegatis; corpore infra atro-nitido, pedibusque concoloribus.

Long. lin. 4, lat. lin. 1½.

Caput atrum et pubescens. Thorax concolor, nodosus, postice et lateraliter tuberculatus. Elytra flava striato-punctata, punctis auromicantibus. Maculæ variæ nigræ a posteriorem partem disci sparsim notatæ. Corpus infra nigrum, nitidum et punctatum, antennis pedibusque concoloribus.

I received the above insect from Captain Roe of Swan River, and am not aware of any notice of *Acmæodera* being found hitherto in Australia.

Sp. 25. *Acmæodera melanosticta*, Hope.

Atra, thorace nigro-nodoso, elytris flavis maculis variis atris variegatis; corpore infra concolori.

Long. lin. 2½, lat. lin. ½.

Caput fronte parum foveolatum. Thorax antice nodosus, nodis excavatis. Elytra flava, striato-punctata, punctis quibusdam auro-micantibus, variisque maculis minutis per totum discum aspersis. Corpus infra nigrum, pedibus concoloribus.

The above insect is from the Swan River, and was received at the same time with the former.

Sp. 26. *Agrilus purpuratus*, Hope.

Purpureus, thorace concolori, lateralibus angulis anticis luteis, elytris purpurascentibus; corpore infra albidis maculis notato.

Long. lin. 4, lat. lin. 1.

Caput purpureum, tribus albidis maculis notatum, linea media impressa. Thorax lineâ sericeâ longitudinali albidâ, lateralibus anticis maculis notatus. Elytra purpurascentia punctulata abdominali lineâ albidâ et sericeâ utrinque conspicua. Corpus infra medio abdominis purpureo, lateribus utrinque albo-maculatis, pedibusque roseo-cupreis.

I received this insect in abundance from Moriatta, where it was captured by Mr. Fortnum.

Sp. 27. *Agrilus assimilis*, Hope.

Purpureus, capite æneo-punctulato flavisque capillis ornato, thorace ad angulos anticos aureo maculato, elytrisque purpurascentibus; corpore infra æneo, lateribus annulorum abdominis subpilosis.

Long. lin. 4, lat. lin. 1.

This species is somewhat allied to *A. purpuratus*, and was sent to me from Western Australia.

Sp. 28. *Agrilus aurovittatus*, Hope.

Affinis *Agrilo purpurato*, Hope, at minor. Purpurascens, capite aurato et punctato, thorace lineâ longitudinali mediâ aureâ, binisque aliis ad latera positis; elytris cupreo-purpureis, vittâ suturali auratâ in singulo conspicuâ, corpore infra æneo, pedibus concoloribus.

Long. lin. 2¾, lat. lin. ¾.

I received the above species from Moriatta.

Sp. 29. *Agrilus pistacinus*, Hope.

Totum corpus supra et infra viride punctatum, antennis saturatiore colore inquinatis. Caput ferè rotundatum; thorace angulis posticis rectè acutis; elytra ænea, creberrime punctulata. Corpus infra viride sericie albida obsitum, pedibus concoloribus.

Long. lin. 2, lat. lin. ½.

I received this minute species from the Adelaide settlement and have named it from its pistacine colour, which soon fades after the death of the insect; it then becomes of a copper hue and is sometimes brassy.

Sp. 30. *Cisseis* 14-*notata*, Hope.

Affinis *C. stigmatæ*, Laporte. Atro-violacea, thorace concolori, lateribus roseo-cupreis, elytrisque obscuris, quatuordecim punctis flavis notatis.

Long. lin. 3½, lat. lin. 1¼.

Caput anticè auratum et punctatum. Thorax atro-violaceus, marginibus lateralibus læte cupreis. Elytra nigricantia, quatuordecim maculis flavis notata. Corpus infra violaceum, pectore segmentisque abdominis croceo-flavis. Pedes violacei et pubescentes.

This beautiful species inhabits the vicinity of the Swan River.

Sp. 31. *Cisseis spilota*, MacLeay, MSS.

Viridi-ænea, thorace quatuor punctis albis notato, elytrisque variis minutis maculis ornatis; corpore infra æneo.

Long. lin. 5½, lat. lin. 1¾.

Caput antice roseo-cupreum, nitidum et punctatum. Thorax fere quadratus, posticè paulo dilatatus, punctis quatuor albidis insignitus. Elytra elongata, striata, variisque minutis maculis variegata. Corpus infra æneum, segmentis abdominis utrinque albo-maculatis, pedibus cupreis.

This insect was sent to me by Mr. MacLeay from New Holland, under the name of *Æsthochrysa spilota;* it differs from *Cisseis*, and will one day be the type of a new genus. I refrain from giving its generic characters, as they will no doubt be published by that individual.

Sp. 32. *Ethon signaticolle*, Hope.

Affinis *E. bicolori*, Laporte, at longior. Violaceum, thorace aureo nitido, binis albidis punctis notato, elytris violascentibus, punctis variis albis per discum aspersis.

Long. lin. 4½, lat. lin. 1½.

Caput anticè excavatum, albis capillis obsitum. Thorax aureus, nitidus, binis punctis albis fere mediis, lateribus externis concoloribus. Elytra obscurè violacea, multis punctis albido-pilosis variegata. Corpus infra atro-violaceum, segmentis abdominis utrinque maculis albis insignitis, pedibusque nigricantibus.

The above insect was received from the vicinity of Port Essington.

Sp. 33. *Ethon roseo-cupreum*, Hope.

Totum corpus supra cupreum et punctatum, capite foveolato, elytris læte cupreis et iridescentibus. Corpus infra æneum, lateribus abdominis albido colore irroratis, pedibus concoloribus.

Long. lin. 3, lat. lin. 1¼.

The above species was captured at Moriatta, where it was taken in great abundance.

Sp. 34. *Ethon cupreicolle*, Hope.

Nigro-æneum, thorace cupreo-aurato, binisque minutis foveis albis notatis, lateribus concoloribus, elytris atris et punctis duodecim albidis notatis; corpore infra viridi et nitido, segmentis abdominis utrinque albo-punctatis, pedibusque viridibus.

Long. lin. 2½, lat. lin. 1.

The above species was taken at Moriatta.

Sp. 35. *Ethon æneicolle*, Hope.

Ænescens, thorace viridi-æneo, foveis dorsalibus albidis binis impresso, lateribus concoloribus, elytris nigricantibus, albopunctatis et subtomentosis; corpore infra viride, segmentis abdominis utrinque albo-punctatis, pedibusque viridi-æneis.

Long. lin. 2¾, lat. lin. 1.

The above species I received from Adelaide.

Sp. 36. *Ethon Gouldii*, Hope.

Æneum, thorace cupreo-æneo, fortissimè punctato, lateribus externè lineâ elevatâ æneâ conspicuis, elytris iridescentibus, æneis, colore violaceo sparsim aspersis, maculis duabus obscuris post scutellum positis; corpore infra æneo, punctato, pedibus concoloribus.

Long. lin. 4, lat. lin. 1¼.

The above species is from Port Essington, and is named after Mr. Gould the Ornithologist to whom it was transmitted.

Sp. 37. *Stigmodera Stricklandi*, Hope.

Flava, thorace olivaceo-æneo, marginibus croceis, elytris atroviolaceis, parte dimidiatâ anteriori flavâ, maculâ violaceâ in singulo ad latera positâ, fasciâque flavâ ad apicem binisque punctis rubro-miniatis in angulo apicis locatis; corpore infra viride, ultimis abdominis segmentis croceo colore inquinatis.

Long. lin. 10, lat. lin. 4½.

Caput anticè æneum, lineâ mediâ violaceâ impressâ notatum. Thorax olivaceo-æneus, lateribus externis croceis, lineâ mediâ longitudinali elevatâ distinctâ. Elytra flava, maculis violaceis in medio disci positis, fasciisque binis latis posticis concoloribus, apicibus duobus punctis miniatis insignitis. Corpus infra virescens, segmentis abdominis croceis, posticè viridi colore inquinatis, pedibusque concoloribus.

The above insect I received from Moriatta; it greatly resembles *Stigmodera Mitchellii* from the Swan River, and by some might be thought a variety of it; in the absence of the impressed foveæ of the thorax and in various other minor points it may readily be distinguished. It is named after the well known Ornithologist Mr. Strickland.

XXXI. *Some Account of the preparatory States of* Bombyx (Actias) Selene *of India. By* Capt. THOMAS HUTTON, (*in a Letter addressed to J. O. Westwood, Esq.*)

[Read 6th May, 1844.]

THE first specimen of this splendid moth was brought to me on the 13th April, 1842, by a boy who had captured it in a deep and warmly-sheltered glen at Mussooree. The specimen was a female, and was found clinging to the branches of a tree, or rather shrub, very similar to the Tartarian honeysuckle; it was accompanied by a male (in coitu), which effected its escape. As the specimen was much injured by her rough captor, I suffered her to live and deposit her eggs, which she did on the evening of the same day, to the number of 32, each being of the size of a large mustard seed, and of a mottled brownish colour. During the whole of the succeeding day she remained perfectly stationary, clinging to the window frame, but in the evening deposited 84 eggs, and on the following evenings she again deposited as follows: on the 15th, 38 eggs; on the 16th, 21 eggs; on the 17th, 16 eggs; on the 18th, 21 eggs; on the 19th, 14 eggs; on the 20th, 14 eggs; and on the 21st, 7 eggs, amounting in all to 246 eggs, and she then died.

On the 28th April I received a male and female from the same place, and in the evening the female deposited 89 eggs; and continued each night to increase the number until she had deposited 300 eggs, when she died.

On the 30th April, or eighteen days from the time of deposition, the first batch of eggs began to hatch; the newly born caterpillar is about three lines in length, hairy, and of a pale rufous red, with a single black band across the middle of the body, and a small black transverse mark on the anterior segment; along the back are two rows of small tubercles, and another along each side, from each of which spring a few short hairs, the base of which forms a small black dot; there is also an anal tubercle, larger than the others, and placed between the two last tubercles of the dorsal rows; the head is black.

I was now exceedingly puzzled to find out the proper food, and having unsuccessfully tried several kinds, at last gave them the leaves of our common hill oak (an Ilex), of which they ate sparingly and without appetite. This was evidently not the proper food; and although they continued to eat it they did not thrive, but died in such numbers that I had at last only five caterpillars left out of 546, and even these I was in daily expectation of losing, when by a lucky chance, on the 30th of June, I discovered a single caterpillar in the forest feeding on a tree known to the natives as the "*Munsooree*."

Branches of this tree were now substituted for the oak, and from thenceforward the caterpillars ate greedily, and increased rapidly in size.

The first moult commenced when six days old, and this occupied three days, so that at the end of nine days the caterpillar appeared in its second stage. The black transverse band upon the body had disappeared, but the head still remained of that colour, and the rest of the body was hairy and rufous ; the tubercles being black on the summit, and more prominent ; prolegs brown.

The period between each change was about ten days in some specimens, but varied in others between that and shorter periods, probably depending in a great measure upon the quantity of nourishment obtained from the branches with which they were daily supplied.

In the third stage the caterpillar appeared of a bright rufous colour ; the black dots or tubercles being larger and more prominent, but there were no black bands.

In the fourth stage the change was still more remarkable, for the caterpillar now appeared of a beautiful pale apple green, each tubercle headed with bright orange, except the four which spring from the second and third segments, which are ringed with black, and crowned with pale yellow ; and the *anal* and *two posterior* tubercles, which are green throughout. From each tubercle springs a small tuft of hair, the centre one of each being longer than the others ; the head and prolegs brown ; along each side is a line which is red above and yellow below, and the spiracles are red ; there is a line of very small yellow dots along each side, between the rows of tubercles.

In the fifth stage the colours are the same, as are they also in the sixth and seventh stages, but the caterpillar increases rapidly in size, and is most beautiful and delicate in appearance, with a semi-transparency of hue, which makes it look something like wax work.

One of these commenced spinning its cocoon on the 17th of July, being then about forty-six or forty-seven days old ; and the remainder after the interval of a day or two, that is, on the 19th, 20th, and 25th July, spun up also.

The cocoon is formed of coarse brown silken threads, closely interwoven, and of an ovate form ; it is inclosed among the leaves of the tree, which are in fact glued closely round it. It is hard, and not furnished interiorly with a soft silken bed, the chrysalis lying within a hard and hollow chamber.

The chrysalis remained thus until the 14th August, when the one which had turned on the 17th July produced a perfect female, after a period of twenty-nine days. Another, which had turned on the 19th July, came forth a male on the 16th August, showing the time to be pretty uniform. A large caterpillar however, which I found in the forest on the 16th July, turned to a chrysalis on the 24th of that month, but instead of coming forth in the autumn, it remained in the chrysalis state throughout the winter, as did some others; coming out in the following summer, namely, on the 11th, 14th, and 18th of June.

There would consequently appear to be great irregularity in the time of coming forth from the pupa state, and this at first led me to consider the insect double brooded. On farther consideration, however, I am inclined to abandon that opinion.

The eggs deposited by the specimens procured on the 13th and 28th of April produced perfect insects in the middle of August; but had these been permitted in their turn to deposit eggs, no caterpillar would have been hatched from them until the following spring or summer months. It was probably from such ova that the caterpillars procured in the forest on the 30th June and 16th July had been produced, while the moths captured in the middle of April had come forth from pupæ which had survived through the winter in that state; the species is thus seen to be only single brooded, although the larvæ are found throughout the year.

The caterpillar feeds upon several trees common on these hills, and among others the walnut has been mentioned to me. The most common food appears to be the Munsooree, a shrub which is so common as to have given rise, I believe, to the name of this settlement, viz. "Munsoory," or more commonly among Europeans, "Mussooree." I do not know the botanical name of this shrub, but doubtless both Dr. Royle and Falconer will make you acquainted with it.

Note.—Capt. Hutton proceeds to notice the mode by which it appeared to him that the moth makes its escape from the cocoon, as noticed in the Journal of Proceedings of the 6th May, 1844, which it has not however been considered advisable to publish further in detail, until fresh observations promised by the author have been received.

XXXII. *Description of a new Genus of Longicorn Beetles.*
By J. O. Westwood, F.L.S. &c.

[Read 2d October, 1843.]

Although many Longicorn beetles are remarkable for the elongation of the fore feet, few possess them greatly thickened, and there are none in which we find this character so strikingly developed as in the species of which I beg to offer the description to the Entomological Society, and which from this circumstance may be generically named

Eupromera.

Corpus breve, crassum, subdepressum. *Caput* breve, verticale, pronoto angustius. *Trophi* parum elongati. *Mandibulæ* apice graciles, acutæ. *Antennæ* fere corporis longitudine, in tuberculum in sinu oculorum insertæ, filiformes, 11-articulatæ; articulo 1mo clavato, 2ndo distincto, 3tio tertiam partem antennarum longitudine occupante, reliquis longitudine decrescentibus, ultimis brevissimis. *Prothorax* subquadratus, capite parum latior, dorso lateribusque subtuberculatis, pone medium paullo constrictus. *Elytra* prothorace e tertia parte latiora, parallela, apice inermia, singulo costa elevata tuberculisque nonnullis instructo. *Femora* antica maxima inflata, subtus pro receptione tibiarum canaliculata, lateribus canalis setigeris. *Tibiæ* anticæ curvatæ. *Pedes* 4 postici formæ ordinariæ subbreves, femoribus in medio subclavatis, tibiis externe post medium haud scopâ instructis.

Species unica. *Eupromera Spryana.* (Pl. XIII. fig. 5.)

Griseo-villosa, fusco luteoque parum variegata, apicibus articulorum antennarum fusco cinctis, elytris fusco tuberculatis.

Long. corp. lin. 3½. Habitat in Brasilia.

In Mus. D. Hope. Communicavit D. Spry, M.E.S.

Etiam in Mus. nostr.

Caput obscurum; prothorax tuberculis tribus sat conspicius in disco, in triangulum posita; elytra humeris subquadratis, singulo costa elevata abbreviata in disco versus suturam, alteraque laterali postica griseo fuscoque maculata tuberculoque elongato, fulvo-piloso, pone medium versus suturam; pedes fusco varii, tibiis posticis pone medium macula nigra notatis.

This species is named to commemorate the excellent talents of W. Spry, Esq. a member of this Society, to whom we are mainly indebted for the beautiful and at the same time highly useful work upon the genera of beetles found in this country, entitled "British Coleoptera delineated," a work of which no Coleopterous tyro ought to be destitute.

XXXIII. *Characters of various new Groups and Species amongst the Coprophagous Lamellicorn Beetles.* By J. O. Westwood, F.L.S. &c.

[Read 7th March, 1842, &c.]

As considerable interest is attached to the various types of form amongst the species of insects known by the ordinary name of sacred beetles (on account of the veneration with which the Egyptians regarded those particular species which are inhabitants of their strange land,) I need offer no apology in submitting to the notice of the members of this Society descriptions and figures of various new and interesting species belonging to that family lately arrived in this country.

One of these insects possesses characters differing so much from those of all the rest of the true and typical subgenus *Heliocantharus*, to which it is most nearly allied, that I am induced to regard it as possessing a higher rank than that of a mere species of that group; at the same time it is to be admitted that it seems scarcely entitled to an equal rank with the types of form which Mr. MacLeay has named *Mnematium*, *Pachysoma* and *Gymnopleurus*.

Sebasteos, *Westw.*

Typus Scarabæorum sacrorum, *Heliocantharo* magis affinis.

Antennæ articulo 3tio et 4to 5to duplo longioribus, subæqualibus, 5to et 6to brevibus, pateriformibus; 7mo, 8vo et 9no clavam angustiorem formantibus. Caput maximum. Clypeus radiatus, dentibus duobus anticis obtusis, intermediis latis truncatis, posticis duobus angulatis; clypeus subtus antice dentibus tribus deflexis armatus. Tibiæ anticæ angulatæ, extus 4-dentatæ, dentibus duobus apicalibus inter se remotis, intus serratulæ denteque medio armatæ. Tarsi antici obsoleti; postici 2 articulis subclavatis verticillatis.

Of these characters the variation in the relative size of the intermediate joints of the antennæ, the large size of the head, the curious horns with which the under side of the projecting lobes of the clypeus are armed, the curved fore legs armed on the inside beyond the middle with a short tooth, and the form of the hind tarsi, are those by which it is most easily distinguished from the true *Heliocanthari*.

Sp. unica. *Scarabæus* (*Sebasteos*) *Galenus*, Westw.
(Pl. XVII. fig. 1.)

Niger, nitidus, capite magno varioloso-punctato, pronoto punctato, margine postico lævi; elytris stria suturali alterisque quinque tenuibus sub lente punctatis; disco tenuissime punctato; pronoto utrinque versus marginem lateralem puncto majori impresso notato.

Long. corp. lin. 14.
Habitat in Africa meridionali. D. Burke.
In Mus. Soc. Zool. Lond.

This is one of the fine species of insects brought to England by Mr. Burke, and presented by the Earl of Derby to the Zoological Society of London, and which were captured in the hilly country lying between 25° and 26° south lat. and 27° and 28° east long.

Plate XVII. fig. 1, the insect of the natural size; 1 *a*, the head seen sideways; 1 *b*, the mentum and labial palpus; 1 *c*, the antenna; 1 *d*, intermediate tibia and tarsus; 1 *e*, posterior tarsus.

Sceliages, *Westw.* (in Trans. Zool. Soc. ii. p. 159.)

Sceliages Hippias, Westw. (Pl. XVII. fig. 2.)

Niger, nitidus, capite sub lente tenuissime punctato; clypeo cornubus duobus intermediis porrectis; pronoto fere lævi, elytrisque sublævibus et minus nitidis, singulo striis 6 vix discernendis; tibiis anticis haud in medio angulatis, extus 4-dentatis et serrulatis, metasterno antice producto et convexo-prominulo.

Long. corp. lin. 8.
Habitat in Africa meridionali. D. Burke.
In Mus. Soc. Zool. Lond.

This species is distinguished from the *Sceliages Iopas*, described by me in the Transactions of the Zoological Society, by its less dilated form, as well as by the characters mentioned above.

Plate XVII. fig. 2, the insect of the natural size; 2 *a*, the antenna; 2 *b*, the clava of the antenna seen from the opposite side; 2 *c*, anterior tibia; 2 *d*, base of middle tarsus; 2 *e*, posterior tarsus.

Epilissus, *Dej. Cat.*

The genus *Epilissus* of Dejean's Catalogue, adopted by Reiche in his synopsis of the Ateuchideous genera, published in the

"Revue Zoologique," (1841, p. 212,) consists of Madagascar insects which differ very much from each other in several respects, so that I am induced to describe several of them as the types of respective subgenera. Retaining the *Canthon prasinus* of Klug, (Mad. Col. p. 73,) as the type of the typical subgenus, we find it distinguished by the following characters:—

Mentum latum, suborbiculare, antice valde emarginatum. *Palpi* labiales crassi, articulo ultimo præcedenti longitudine æquali. *Prothorax* lateribus fere rotundatis, haud reflexis. *Elytra* prothorace manifeste latiora, fere rotundata striata. *Pedes* parum elongati. *Femora* brevia, subtriangularia. *Tibiæ* anticæ elongato-triangulares, depressæ, rectæ: margine externo serrulato, extus acute tridentatæ. *Tibiæ* 4 posticæ curvatæ, basi gracillimæ, apice sensim dilatato. *Tarsi* antici minutissimi; 4 postici tibiarum fere dimidio longitudine, articulo basali breviori, ultimo simplici, unguibus curvatis.

Plate XVI. fig. 1, *Epilissus prasinus*; 1 *a*, instrumenta labialia; 1 *b*, labial palpus; 1 *c*, anterior tibia and tarsus; 1 *d*, intermediate tibia and tarsus.

The *Canthon viridis* of Latreille, figured by Guérin in the "Iconographie du Règne Animal," pl. 21, fig. 3, (Griffith, An. Kingd. Ins. pl. 45, fig. 4,) is evidently congeneric with *E. prasinus*; indeed Dr. Klug (Col. Mad. p. 73) suggests that it may be the female of that species.

Another beautiful species, described by Laporte under the name of *Circellium nitidum* (Hist. Nat. Ins. Col. vol. 2, p. 66), presents the following subgeneric characters, and may be named, from the great length of its feet, which give it a resemblance to a spider,

ARACHNODES, *Westw.*

Mentum basi latius, lateribus convergentibus, apice haud emarginatum. *Palpi* labiales graciles, articulo ultimo præcedenti fere dimidio minori. *Antennarum* clava elongata. *Prothorax* lateribus pone medium valde angulatis et reflexis. *Elytra* prothorace vix latiora, magis quadrata, haud striata. *Pedes* valde elongati, graciles. *Femora* elongata, parum compressa. *Tibiæ* anticæ graciles, ante apicem subito intus curvatæ et setosæ, margine externo serrulato, apice dentibus tribus parvis obtusis. *Tibiæ* 4 posticæ graciles, parum curvatæ, apice compresso et valde setoso, calcaribus minutis. *Tarsi* antici fere tibiarum dimidio longitudine; 4 postici tibiarum dimidio plus longiores, omnes compressi, valde setosi, articulo basali minimo, 2ndo duobus sequentibus longiori, 5to latiori ad apicem subtus in spinam parvam producto; unguibus valde curvatis.

Plate XVI. fig. 2, *Arachnodes nitidus;* 2 *a*, instrumenta labialia; 2 *b*, labial palpus; 2 *c*, antenna; 2 *d*, anterior tarsus; 2 *e*, posterior tarsus.

The *Circellium clypeatum* of Laporte, (Hist. Nat. Ins. Col. vol. 2, p. 67,) will form another subgenus, distinguished by its very depressed form, short prothorax, having the sides rounded, the elytra striated, the mesosternum channelled down the middle, and the tibiæ very much curved.

The insects above described are of comparatively large size, being more than half an inch long and of splendid green tints; but there are several much more minute species of a black colour, also natives of Madagascar, which are, in fact, the pygmies of the family of the sacred beetles, not exceeding one-eighth of an inch in length. They may be characterized thus:—

NANOS, *Westw.*

Antennarum clava brevis, subrotundata. *Mentum* in medio latius, antice valde emarginatum. *Palpi* labiales brevissimi, lati; articulis 1 et 2 fere æqualibus, 3tio minimo. *Prothorax* lateribus fere rotundatis, haud reflexis. *Elytra* prothorace evidenter latiora, fere rotundata, lævissime striata. *Pedes* parum elongati, sublæves. *Femora* postica subovalia. *Tibiæ* anticæ curvatæ, depressæ, sensim latiores, apice extus 3-dentatæ; tibiæ 4 posticæ curvatæ, versus apicem paullo latiores. *Tarsi* antici mediocres, 4 postici longiores, unguibus valde curvatis.

Circellium pygmæus, Laporte. Hist. Nat. Col. 2, p. 67, is the type of this subgenus.

Plate XVI. fig. 3, *Nanos pygmæus;* 3 *a*, instrumenta labialia; 3 *b*, labial palpus; 3 *c*, posterior tibia and tarsus.

The remaining groups, which I propose to describe in this communication, belong to that section of the *Scarabæidæ* which possess short and triangularly dilated posterior tibiæ, and the tarsal joints of the hind feet gradually narrowed, of which *Copris* is the typical genus.

MACRODERES, *Westw.*

Corpus fere hæmisphæricum. *Clypeus* antice emarginatus, laciniis obtusis, postice transverse carinatus. *Mentum* sub-

triangulari, antice valde emarginatum, setosum. *Palpi* labiales articulo 2ndo præcedenti parum minori, ultimo minuto ovali. *Prothorax* maximus, elytris fere major, lateribus rotundatis, antice utrinque obsolete retusus. *Elytra* prothorace haud latiori, semicircularia, punctulata et lævissime striato-punctata. *Tibiæ* anticæ extus dentibus tribus armatæ. *Femora* 4 postica brevia depressa: tibiæ apice dilatatæ intermediæ 2-posticæ 1-calcaratæ. *Tarsi* antici mediocres, articulo ultimo præcedentibus longitudine æquali; tarsi 4 postici articulo basali majori compresso-triangulari.

Type of the genus *Onthophagus Greenii*, Kirby, Linn. Trans. vol. 12, p. 397. Mr. Kirby observes of this insect, which is a native of the Cape of Good Hope, that it seems to vary from the habits of *Onthophagus*, and forms an intermediate link between it and *Copris.*

Plate XVI. fig. 4, *Macroderes Greenii*; 4 *a*, instrumenta labialia; 4 *b*, labial palpus; 4 *c*, intermediate tarsus and apex of tibia.

UROXYS, *Westw.*

Corpus oblongum, subdepressum, læve, nitidum, elytris postice acuminatis. *Clypeus* antice in lobos duos subacutos productus, vertice subconvexo. *Mentum* subquadratum, antice vix angustatum, margine antico parum emarginato. *Palpi* labiales articulis longitudine fere æqualibus, at sensim gracilioribus. *Prothorax* latior quam longus, lateribus in medio angulatis, tenue marginatis. *Elytra* oblonga, prothorace vix latiora, apice singuli acuminato, lævissime striato-punctata. *Pedes* antici elongati, tibiis anticis depressis, in medio (in uno sexu saltem), intus angulariter productis, extus versus apicem tridentatis. *Tarsi* brevissimi biunguiculati. *Pedes* 4 postici breves, tibiis apice triangulariter dilatatis, extus serrulatis. *Tarsi* articulo basali majori depresso; 4to minuto, 5to tenui, brevi, biunguiculato.

Uroxys cuprescens, Westw. (Pl. XVI. fig. 5.)

Cupreo-seu violaceo-nigricans, nitida; antennis rufescentibus; capite, pronoto et elytris lævissime punctulatis, horum singulo striis 8 læviter punctatis; tarsis piceis.

Long. corp. lin. 4$\frac{3}{4}$.

Habitat Colombia. Mus. Hope.

Plate XVI. fig. 5, *Uroxys cuprescens*; 5 *a*, labrum; 5 *b*, mandible; 5 *c*, maxilla; 5 *d*, instrumenta labialia; 5 *e*, posterior tarsus.

SCATONOMUS, *Erichson.* (Wiegm. Archiv.)

This genus, as described by Erichson, comprises several species of an oblong form, some of which are especially distinguished by the very broad emargination of the clypeus, within which are occasionally two acute teeth, and the angles of the emargination are furnished with a thick pencil of fulvous hairs.

In *Scat. fasciculatus*, Er. the anterior tibiæ are broad and triangular, with three teeth close to the extremity on the outside; the mentum has a small prominence in the middle of its frontal emargination; the labial palpi are very short, with the joints subglobose, and gradually diminishing in size.

Pl. XVI. fig. 7. *Scatonomus fasciculatus*; 7 *a*, maxilla; 7 *b*, instrumenta labialia; 7 *c*, labial palpus; 7 *d*, posterior tarsus.

[The two following insects were referred by me to the genus *Scatonomus* of Erichson (Wiegmann's Archiv. f. Naturg. i. p. 256), when this paper was read before the Entomological Society, their general characters and habits appearing to me to be sufficiently congeneric with those of *Scat. fasciculatus*, which Erichson places in the genus without any expression of doubt, although it seems to recede as much from the typical species *S. viridis* (judging from the figure given by Dr. Erichson of that insect) as the two following species do from *S. fasciculatus*. As Dr. Erichson, however, in his Jahrbericht for 1842, (translated by the Ray Club,) has stated that the two following insects do not enter into his genus, I now restore to them the generic name of *Onthocharis*, proposed without characters in Dejean's Catalogue.]

Onthocharis myrmidon, Lacordaire, MS. (Pl. XVI. fig. 8.)

Subcylindricus, niger; capite et pronoto viridibus, nitidis; clypeo profunde emarginato, in sinu acute bidentato, elytris leviter striatis, prothoracis angulis posticis prominentibus.

Long. corp. lin. 2.

Habitat Cayenne.

In Mus. D. Melly.

Caput viride, antice piceum, tenuissime punctatum, clypeo late et profunde emarginato, dentibus duobus acutis in sinu antico. Antennæ luteo-rufescentes. Mentum ovale, antice valde emarginatum. Palpi labiales articulo basali obconico, 2do et 3tio fere æqualibus, præcedenti brevioribus. Prothorax elytris fere latior, lateribus rotundatis, angulis posticis postice parum productis, viridis, tenuissime punctatus. Elytra chalybæo-

nigra, nitida, singulo striis 7 lævibus (spatiis intermediis planis), ad basin paullo angustiora (inde subovata apparent). Pedes breves, latiores, picei. Tibiæ anticæ depressæ, versus basin interne angulatæ, extus tridentatæ, subtus serratæ. Tarsi minuti. Tibiæ 4 posticæ subtriangulares, depressæ, extus serratæ. Tarsi articulis basalibus latioribus compressis.

Pl. XVI. fig. 8. *Onthocharis myrmidon*; 8 *a*, maxillary palpus; 8 *b*, mentum and labial palpi; 8 *c*, hind tibia and tarsus.

Onthocharis smaragdinus, Westw.

Brevis, subcylindricus, smaragdinus; capite antice profunde emarginato, in sinu obtuse bidentato; elytris leviter striatis, tibiis 4 posticis angustioribus, prothoracis angulis posticis in lobum parvum productis.

Long. corp. lin. 2¼.

Habitat in Brasilia.

In Mus. Gory (nunc D. Hope).

Onthocharis smaragdina, Gory, MSS.

Scat. myrmidonti paullo latior et inde minus cylindricus, dentibus duobus clypei apice obtusis; tibiis anticis minus dilatatis, margine interno in medio haud emarginato; elytris magis ovatis, striis ut in specie predicta dispositis; pedibus 4 posticis nigricantibus, minus dilatatis; tarsis compressis, at multo angustioribus quam in *Sc. myrmid.*; pronoti angulis posticis (e latere visis) in angulum acutum reflexum productis.

The two preceding species, in habit and colours as well as several parts of their structure, appear to be intermediate between the typical *Scatonomi*, and the genus next to be described under the name of

ANOMIOPUS, *Westw.*

Corpus oblongum, subconvexum, pedibus latissimis. *Mentum* ovale, subplanum, basi truncatum, antice vix emaginatum. *Palpi labiales* breves, articulis sensim minoribus. *Clypeus* antice in medio in dentibus duobus productus. *Prothorax* lateribus rotundatis marginatis, convexus. *Elytra* marginata, striisque 7, vix punctatis, impressa. *Pedes* breves, latissimi, tibiis anticis versus basin interne angulatis, externe dentibus tribus inter se valde distantibus armatis. *Tarsi* antici minuti. *Tibiæ* 4 posticæ valde compressæ, extus, pone medium subangulatæ tarsisque latissimis.

[Dr. Erichson, in his Jahrbericht for 1842, considers that this

genus can scarcely be distinguished from *Onthocharis*, as the Berlin Collection possesses a series of species in which a gradual transition is found in the hinder tarsi, from the broadest form (as in *A. virescens*), to their narrow condition, as existing in *O. myrmidon*. With the insects before me, I prefer retaining the group as a provisional subgenus.]

Sp. 1. *Anomiopus virescens*, Westw. (Pl. XVI. fig. 6.)

Æneo-virescens, dentibus duobus clypei obtusis; capite, pronoto, et elytris tenuissimè, sed irregulariter punctulatis; elytris lævissime striato-punctatis, punctis vix distinctis; tibiis 4 posticis in medio prominulis; tibiis anticis basi externe 4-serratis, vertice puncto impresso.

Long. corp. lin. 3½.
Habitat in Brasilia.
In Mus. D. Melly.

Pl. XVI. fig. 6. *Anomiopus virescens; 6a*, instrumenta labialia; *6b*, anterior tibia and tarsus.

Sp. 2. *Anomiopus nigricans*, Westw.

Æneo-niger, dentibus duobus clypei acutioribus tenuioribus et parallelis; fortius punctatus; vertice puncto nullo in medio, sed duobus minoribus inter partem posticam oculorum, capite antice et postice purpureo-tinctis; antennarum clava piceo-nigra, articulis basalibus brunneis, pronoti disco postice linea longitudinali brevi impressa; elytris paullo longioribus, cyaneo-nigris, striis profundioribus; pedibus anticis castaneis, tibiis basi externe 7-denticulatis, pedibus posticis æneo-nigris, tarsis piceis, tibiis in medio extus haud prominulis; tarsis parum angustioribus; podice punctis magnis impresso.

Long. corp. lin. 2½.
Habitat in Brasilia.
In Mus. D. Melly.

XXXIV. *Description of the male of* Gastroxides ater, *a Dipterous Insect belonging to the Family* Tabanidæ. *By* W. W. Saunders, Esq. F.L.S.

[Read 7th July, 1845.]

In the first part of the third volume of the Entomological Society's Transactions I described a dipterous insect from the north of India, belonging to the family *Tabanidæ*, under the name of *Gastroxides ater*. At that time I was only acquainted with the female, but since then, through the kindness of Mr. Westwood, I have been allowed to examine and figure the male, which is in Col. Hearsey's Collection, and differs from the female in having the second joint of the abdomen rufous, and the eyes large, and contiguous vertically. This figure and description I now beg leave to lay before the Society.

Gastroxides ater, ♂, W. W. Saund. (Pl. XIV. fig. 3.)
(Trans. Ent. Soc. iii. p. 59, Pl. V. fig. 4, ♀.)

Head broader than the thorax, semicircular. *Face* yellowish brown, with a large, elevated, shining chesnut brown tubercle in the centre, extending from the mouth to the base of the antennæ. *Region of the mouth* black, hairy. *Proboscis* about the length of the head. *Eyes* dark rufous brown, large, and meeting on the vertex. *Antennæ* black, rather more slender than in the female, and having the spine at the base of the terminal joint not so prominent. *Thorax* orbicular, black, hairy. *Wings* marked as in the female. *Abdomen* black, with the posterior margin of the first joint, the whole of the second joint, and the anterior margin of the third joint, bright rufous. *Legs* black.

Length, ½ inch; expansion of wings, 1 inch.

From Northern India.

In the Collection of Col. Hearsey.

XXXV. *Notes on the Genera* Holoparamecus, *Curtis;* Amphibolonarzron, *Porro;* Latrinus, *Waltl; and* Calyptobium, *Villa. By* J. O. Westwood, F.L.S.

[Read 5th May, 1845.]

In 1833, Mr. Curtis, in a paper published in the second number of the Entomological Magazine (p. 186), containing the characters of some undescribed genera and species indicated in his "Guide to an Arrangement of British Insects," described a minute beetle, measuring one-half a line in length, under the name of *Holoparamecus depressus*, belonging to the family *Corticaridæ*, with the observation, "This insect appears to connect *Scydmænus* and the group I have called *Corticaridæ*, which has hitherto been included in the family of *Engidæ*. I took a single specimen in Norfolk many years since, and believe it to be granivorous." Of this insect, in 1836, he published an excellent figure in his "Generic Illustrations," describing and representing the antennæ as 9-jointed, the tarsi as 3-jointed and slender, the body depressed, with several impressions on the hind part of the thorax, and giving figures of the upper lip, mandible and maxillæ, having unfortunately failed in discovering the labium and its parts. Of its relations he thus observes: "This very minute insect recedes from the typical groups of the Coleoptera, having only 9-jointed antennæ, and triarticulate tarsi; it is, however, undoubtedly allied to *Corticaria* as well as to *Latridius*, with which it accords in the shape of the antennæ, and in the numerical structure of the tarsi;" adding, that the genus *Eutheia* seems to strengthen the opinion, that this genus connects the *Corticaridæ* with the *Scydmænidæ*." Of the habits of the genus he states, that he "took a single specimen of *H. depressus* many years since, running up the outside of a flour mill in Norfolk, which led me to believe that it fed upon grain; but I have since found several specimens amongst small pieces of decayed wood and bark, which came from Mexico I believe, and this renders it probable that it may live in the crevices and under the bark of trees, and also that it is, like many other insects, an imported species."

In preparing the "Generic Synopsis" of my "Introduction to the modern Classification of Insects," I had occasion to examine an insect in my own collection, obtained from that of the late Mr. Haworth, by whom it was labelled *Sierra Leone*, and which agreed in all respects with Mr. Curtis's figure, except that the antennæ were 10-jointed; I therefore introduced the genus into my list, with the characters "oblong, depressed, antennæ 10-jointed, club 2-jointed, thorax obcordate, tarsi 3-jointed." In the meantime Signor Villa had introduced into his Catalogues of Europæan Coleoptera, a genus amongst the *Xylophaga*, to which he first gave the name of *Calyptobium*, then that of *Amphibolonarzron*, Porro, with his own name as a synonym, and then again that of *Calyptobium*, with the name of *Latrinus* of Waltl as a synonym; all these names appear to have been unaccompanied by any description. In 1843, however, M. Aubé, whose devotion to the minute Coleoptera is so well known, published a memoir on the genus *Calyptobium* in the Annals of the Entomological Society of France, describing four species, and giving a series of details of the parts of the mouth, &c.; the legs, 3-jointed tarsi, labrum, mandibles, maxillæ, and entire habit agreeing with Mr. Curtis's figure of his *Holoparamecus*, with which M. Aubé was unacquainted, but representing and describing the antennæ as 11-*jointed*, and also describing and figuring the lower parts of the mouth overlooked by Mr. Curtis, and of which the labial palpi, from the very large and nearly globular shape of the middle joint, and the smaller triangular terminal joint, as well as the 3-jointed simple tarsi, entirely confirm the relationship of the genus to *Latridius* and *Mycetæa*. Of the four species described by M. Aubé, *Calyptobium Villæ* is found abundantly near Milan; *C. caularum* was taken by the Marquis de la Ferté Sénectère "dans du fumier de couches à melons," as well as by M. Aubé himself "dans le fumier d'une bergerie" near Chateaureux, and by M. Langeland in a similar situation near Paris; M. Reiche had found it also in a box of insects from Senegal. *C. Kunzei* was found by M. Kunze "dans des champignons" received from Brazil; and *C. nigrum*, the fourth species, was discovered by Mr. Melly in his late journey in Sicily.

M. Aubé considers the genus *Calyptobium* to approach closely to *Monopis*, an undescribed genus of Zeigler, founded on the *Hypophlæus brunnæus* of Gyllenhal, but differing in its 3-jointed tarsi, *Monopis* having them 4-jointed; he admits, however, that its place is uncertain, and that it might be convenient to unite it to the *Trimera* of Latreille, immediately in the neighbourhood of *Cholovocera* of Motschoulski.

At the meeting of the French Entomological Society in the month of January, 1844, M. Guérin Meneville read a "note sur le genre *Holoparamecus*, et sur sa synonymie, et description d'une espèce nouvelle de ce genre," affirming that *Calyptobium* is synonymous with *Holoparamecus*, and that *H. depressus* of Curtis is the *Calyptobium Villæ* of Aubé. The supposed new species described by M. Guérin was discovered by him in the stoves for pine apples at Fleury, and proves, from subsequent communications made to the same society at the next meeting, to be identical with the *Calyptobium caularum*, which had been inaccurately described by M. Aubé, who "s'excuse de son erreur relativement au nom d'*Holoparamecus* en disant, qu'il n'a pu reconnaître comme identiques un genre figuré par M. Curtis, avec neuf articles aux antennes et le sein qui en presente réellement onze."

We have thus a genus, of which the characters assigned to it by three different writers entirely agree, except that Mr. Curtis describes the antennæ as 9-jointed, M. Aubé as 11-jointed, and myself as 10-jointed; it appears, however, from a communication published by M. Motschoulski,* that the species with 9-jointed antennæ was long ago described in Germany under the name of *Sylvanus singularis* by Beck,† and that in consequence of this discovery, M. Guérin Méneville has ascertained that his species possesses only nine joints, for which he accordingly proposes to retain the generic name of *Holoparamecus*, and to employ that of *Calyptobium* for those with 11-jointed antennæ. If such a step were, however, to be adopted, it would be necessary to give a third generic name to my insect with 10-jointed antennæ.

On examining these insects, and comparing them with M. Aubé's figures, it is impossible to arrive at any other conclusion than that they belong to one and the same genus, and that the variation in the number of the joints of the antennæ is either a specific or sexual character, a circumstance in itself of so unusual occurrence in the clavicorn *Coleoptera*, that I have considered it well worthy of being brought before the notice of the Society.

Under these circumstances, I now beg leave to exhibit to the Entomological Society my original specimen from Sierra Leone, possessing ten joints to the antennæ; and two other species, one taken by myself in the decayed part of a wooden case, containing insects lately received from India, and the other received by me from M. Reiche, without any indication of its country, but with the specific name of *difficile* of Villa, which is identical in Villa's Catalogue with *Cal. Villæ.*

The former of these two specimens I observed to run with considerable agility, secreting itself quickly in crevices of the decayed wood.

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* Rev. Zool. par la Soc. Cuvier, 1844, p. 442.

† Beitr. zur Baierisch. Ins. Faun. "Nitidus, ferrugineus, depressus, antennis 9-articulatis, elytris substriatis.—Il se trouve dans le riz pourri. Peut-etre est-il exotique?"

XXXVI. *Description of a new Dorylideous Insect from South Africa belonging to the Genus* Ænictus. *By* J. O. Westwood, F.L.S., &c.

[Read 5th December, 1842.]

The attention of Hymenopterologists was a short time ago (namely in the summer of 1840) strongly aroused by the announcement by Mr. Shuckard of the "discovery of an insect belonging to the group typified by Dorylus that will," as he expressed himself, "I expect, help to clear up the difficulty which has hitherto attended the completion of these genera, as yet consisting of males only." But though the interest raised by this announcement was great, the question of the nature and relations of these groups was still left almost in statu quo; in fact, the insect in question proved to be the male of a species belonging to another genus of this singular group, affording no clue to the solution of the question in dispute; indeed, the result of Mr. Shuckard's observations rather tended to the assertion of the ordinary bisexual character of *Dorylus* and its allies, and its consequent isolation from the family of the ants. The insect described by Mr. Shuckard was named by him *Ænictus ambiguus*, and was described from specimens collected in India by Colonel Sykes. The geographical range of the species of this group was indeed an interesting fact, for hitherto no *Labidus* has been found but in the new world, although *Dorylus* was known to enjoy a wider range, occurring not only in Africa but also in the East Indies, whence I had a short time previously described a species collected by Mr. Saunders. To this gentleman I have since been indebted for a specimen of *Ænictus ambiguus*, of which species there are specimens in a large collection of Indian insects recently arrived in England, and now offered for sale by a merchant in the city. Previous to the publication of Mr. Shuckard's memoir I had also discovered another species of *Ænictus* in one of the store drawers of the Linnæan Society's Cabinet, which I believe to be also a native of India. Of this species, as well as of several new species of *Labidus*, I published figures and descriptions in my "Arcana Entomologica" (pl. 20), wherein I endeavoured to prove the ant-nature of this group of insects, an opinion which I am happy to learn has been adopted by the distinguished Hymenopterists Drs. Klug and Erichson of Berlin. Under these circumstances I was greatly interested in recently detecting in a collection of South African insects sent by Mr. Drege to Mr. Saunders an insect belonging to this subfamily, which in several respects seems more fully to confirm the Formicideous character of the group. The insect in question was indeed sent by Mr. Drege as an individual belonging to one of his species of ants, (No. 1485,) of which other specimens (being a true species of *Formica*) were also sent. The insect disagrees in one or two slight respects from Mr. Shuckard's character of *Ænictus*, but I have not thought it necessary to propose a new subgenus for its reception. Of these characters the most striking are the slightly opaque whitish wings, with the veins and stigma almost concolorous with the membrane of the wing; the antennæ gradually attenuated from the fourth or fifth joint, and the very clavate femora to all the feet: the palpi of this insect differ materially from those of *Labidus*.

Ænictus inconspicuus, Westw. (Pl. XIV. fig. 4.)

Nigro-cinereus, pubescens, antennis rufo-piceis, apicibus sensim acuminatis, articulo basali nigro; mandibulis longis, acutis, piceo-rufis, basi nigris; alis fere translucidis, venis stigmateque fere inconspicuis; pedibus perbrevibus, femoribus clavatis, pedunculo abdominis transverso, antice parum angustiori, disco haud canaliculato.

Long. corp. lin. 4, expans. alar. lin. 6½.
Habitat in Africa australi. Drege.
In Mus. W. W. Saunders.

DESCRIPTION OF THE FIGURES.

Fig. 4, the insect magnified; 4 *a*, the head seen in front; 4 *b*, maxilla; 4 *c*, labium; 4 *d*, antenna; 4 *e*, fore foot; 4 *f*, ungues and pulvillus; 4 *g*, base of the abdomen seen sideways.

XXXVII. *Descriptions of some Exotic Insects, belonging to the Family* Aphodiidæ. *By* J. O. Westwood, F.L.S.

[Read 7th August, 1843, and 7th April, 1845.]

Euparia castanea. (Pl. XVII. fig. 3.)

This insect has hitherto been known only by the short description given in the Encyclopédie Méthodique (vol. x. p. 357), by Messrs. Serville and St. Fargeau, who merely state that "ce nouveau genre, très voisin de celui d'*Aphodie*, s'en distingue par les caractères suivans: côtés de la tête dilatés, et formant un triangle, angles postérieures du corselet fortement échancrés, angles huméraux des élytres pointus, et très prolongés en devant;" giving the following short specific description:

> "*Euparia* fuscè castanea; punctata; capitis angulis lateralibus dilatato-subspinosis; thoracis basi sinuatâ, utrinque marginatâ; elytris striato-punctatis, humeris porrecto-subspinosis.
> "Long. 3 lin.
> "Patrie inconnue."

Dejean introduced this insect into his "Catalogue des Coléoptères" as a native of North America; a specimen of the same insect, sent by M. Gory to Mr. Hope for examination, was also labelled North America.

This specimen was 2½ lines long (English measure), of a dark castaneous colour, with the elytra somewhat darker, the pronotum very glossy, and the sides of the body clothed with short pale luteous setæ. The head is nearly as broad as the prothorax, with a deep incision on each side, leaving the lateral angles free and prominent. The mandibles (fig. 3*a*), maxillæ (fig. 3*b*), and lower parts of the mouth (fig. 3*c*), as may be expected, scarcely differ from those of *Aphodius* (Mod. Class. Ins. i. 201, cut 20, fig. 15—18); the mentum is however more quadrate, and broader in front (fig. 3*c*), and I did not perceive the basal joint of the labial palpi, which was probably retracted. The prothorax is broad, and has the fore angles porrected, whilst the hind ones are emarginate. Each elytron has eight fine simple longitudinal striæ, each of which is margined with a row of small punctures on either side. The fore tibiæ are tridentate, and the hind ones simple and slender.

Pl. XVII. fig. 3. *Euparia castanea*; 3 *a*, mandible; 3 *b*, maxillæ; 3 *c*, instrumenta labialia.

Euparia nigricans, Westw. N. Sp. (Pl. XVII. fig. 4.)

E. piceo-nigra, capitis parte antica tarsisque rufescentibus, pronoti angulis anticis porrectis, posticis latioribus rotundatis, angulisque humeralibus elytrorum acute porrectis.

Long. corp. lin. $2\frac{1}{2}$.

Habitat —— ?

In Mus. Dupont, Parisiis.

This insect, in the form of the head and the produced anterior angles of the elytra, resembles the preceding species, but the form of the prothorax is very different, being considerably narrower before than behind, with the fore angles porrected and rounded, the hind angles rounded off, and the disk covered with large deep punctures, and the margins setose. Each elytron is marked with eight rows of deeply impressed striæ. The scutellum is elongate, triangular. The anterior tibiæ are tridentate, and the hind ones slender, but dilated at the tips.

I regret that I am not able to give the locality of this species, M. Dupont having sent me the insect with no other indication than was afforded by a bit of green paper attached to it. As Entomologists can never be universally brought to agree upon the employment of particular coloured labels for particular geographical districts, and moreover as such a plan, even if adopted, would still require the indication of more precise localities, now that the geographical range of insects has become so much more important an element in entomological science than it has until lately been deemed, I cannot but strongly object to the employment of any other mode of indication of localities than that of their absolute name upon tickets attached to the specimens.

Pl. XVII. fig. 4. *Euparia nigricans*; 4 *a*, meso- and meta-sterna.

Ryparus, *Guérin*, ined.

This genus has hitherto remained undescribed, being, I believe, only indicated by name in Dejean's "Catalogue des Coléoptères." An unique specimen, received by Mr. Hope from M. Guérin himself, has been kindly lent me for examination, and I now beg leave to offer the following description and accompanying figure of this interesting insect to the Entomological Society.

Caput magnum, supra fere planum, angulis lateralibus ante oculos parum prominentibus. *Antennæ* 9-articulatæ. *Maxillæ* ut in *Aphodio* formatæ. *Mentum* transverso-quadratum, antice valde setosum. *Labium* e lobis duobus membranaceis ciliatis constans. *Palpi labiales* breves, laterales, et, ut videntur, triarticulati. *Prothorax* fere quadratus, capite parum latior, lateribus versus angulos anticos sinuatis, disco longitudinaliter costato. *Prosternum* ante pedes anticos porrectum. *Pedes* antici breves, femoribus crassis, tibiis extus edentatis tarsisque brevibus. *Elytra* prothorace paullo latiora, ante medium parum dilatata, disco costata, costis ante apicem terminatis. *Scutellum* minimum fere inconspicuum. *Pedes* 4 postici graciles, breves, tibiis haud denticulatis. *Abdomen* segmento anali subtus rotundato, granuloso.

Ryparus Desjardinsii, Guérin. (Pl. XVII. fig. 5.)

Niger, opacus, punctatus, luteo-squamosus; pronoto costis 6 longitudinalibus, intermedio utrinque ante medium interrupto, elytrorum sutura costisque 4 (in singulo) elevatis glabris, costis utrinque punctatis; antennis luteis.

Long. corp. lin. 2⅓.

Habitat in Insula Mauritii. D. Desjardins.

In Mus. D. Hope.

This species has been named by M. Guérin Méneville in honour of the late M. J. Desjardins, an excellent entomologist, long resident in the island of Mauritius, where his loss will be felt as long and deeply as it is by those entomologists who, like myself, had been in frequent correspondence with him.

Pl. XVII. fig. 5. *Ryparus Desjardinsii* magnified.

5 *a*, the head seen from above; 5 *b*, maxilla; 5 *c*, instrumenta labialia 5 *d*, antenna; 5 *e*, underside of the prothorax; 5 *f*, anterior tarsus; 5 *g*, hind leg; 5 *h*, underside of the abdomen.

In a small collection of *Coleoptera* recently received from Capt. Boys, corresponding M. E. S., collected at Mhow, in Malwa, in Central India, there were several specimens of a small Lamellicorn beetle, which, although resembling a small species of *Aphodius* in general figure, presented so curious an aspect from their deeply sculptured prothorax, setose tips of the elytra, and broad flat feet, destitute of spines or spurs, that I was induced to examine the structure of the mouth, and therein detected a formation of which I believe no other Coprophagous Lamellicorn offers an analogy. The nature of the food of this great division of the genus *Scarabæus* of Linnæus, consisting of wet vegetable or excrementitious matter, needs only membranous maxillæ and mandibles, whilst their feet are strongly digitated for boring through it or the earth; whereas in the little insects before us we find the maxillæ armed with strong horny setæ or spines, and the feet, although broad, entirely destitute of spines or spurs, presenting in this respect, as well as in the bundles of setæ at the extremity of the abdomen, a singular analogy to some of the species of *Paussus*. It is therefore quite certain that these insects must differ very materially from the *Aphodiidæ* in their habits, and, from the formation of the maxillæ, they might perhaps be considered as more nearly related to the *Trogidæ*, in several of which we have the maxillæ furnished with strong horny spines, as in this new genus, but the mandibles of the *Trogidæ* are corneous and large, whereas in this new genus the mandibles, as well as the labrum and labial palpi, are obsolete; at least I have been unable to discover any rudiment of them in three specimens which I have dissected. From the setose extremity of the elytra the genus may be named

CHÆTOPISTHES.

Corpus oblongum, glabrum, dorso valde sulcato. *Caput* antice deflexum, fronte semicirculari marginato, margine parum reflexo, acumine subangulato, clypeo infra parum convexo, cavitate ovali os includente. *Labrum* obsoletum? *Mandibulæ* membranaceæ?, obsoletæ? *Maxillæ* corneæ, extus valde setosæ, lobo apicali corneo, in unguem acutissimum curvato, subtus setis rectis corneis armato. *Mentum* ovale, basi truncatum. *Labium* et palpi labiales obsoleti? *Antennæ* 9-articulatæ, articulo 2do tribus sequentibus æquali; 6to intus acute producto, tribus ultimis clavam articulis liberis formantibus. *Prothorax* fere rotundatus, antice truncatus, convexus, glaberrimus, medio profunde sulcatus. *Metasternum* subtriangulare. *Elytra* glabra, apicibus setosis, singulo 4-sulcato, sulcis æqui-distantibus. *Pedes* lati, compressi; tibiæ nec spinosæ nec serratæ, angulis externis apicalibus acutis, oblique truncatis.

Chætopisthes fulvus, Westw. (Pl. XVII. fig. 6.)

Totus fulvus, nitidus, capite et prothorace parum castaneis, hoc per totam longitudinem ejus sulcato, angulis posticis basique transverse impresso, impressionibus setulosis.

Long. corp. lin. 1¾.

Habitat in India centrali. D. Boys.

Pl. XVII. fig. 6. *Chætopisthes fulvus* magnified.

6 *a*, the underside of the head; 6 *b*, maxilla; 6 *c*, mentum; 6 *d*, antenna; 6 *e*, fore foot; 6 *f*, middle and hind feet; 6 *g*, posterior angle of the

P.S.—Since this memoir was read, Dr. Klug has published a new part of the "Symbolæ Physicæ," in which he has figured a minute insect from Abyssinia, closely allied to the one above described, under the name of *Corythoderus loripes* (Pl. XLII. fig. 11, and our Pl. XVII. fig. 7). It differs however from Captain Boys' insect, not only in the form of its feet, but also in the sulcation of its prothorax and elytra. Dr. Klug has unfortunately omitted to describe the trophi, the specimen being unique.

XXXVIII. *Descriptions of various exotic Heteropterous* Hemiptera. *By* J. O. Westwood, F.L.S., &c.

(Continued from Vol. II. pp. 24, 253; Vol. III. p. 31; and Vol. IV. p. 122.)

[Read 7th October, 1844, &c.]

Plataspis Bucephalus, *White.* (Entomologist, p. 136.)

(Pl. XVIII. fig. 1.)

As the specimen of this remarkable insect, described by Mr. White, was mutilated, I beg leave to present to the Entomological Society a figure and details drawn from a perfect specimen recently received by the Reverend F. W. Hope, in a collection of insects forwarded to him from Cape Palmas by Mr. Savage.

This specimen (as well as evidently that described by Mr. White) is a male, possessing the broad head with corniform appendages (so commonly indicative of that sex), a scutellum emarginate at its tip when seen from behind, and the exserted sexual apparatus, concave on its lower surface except at the base, of the male. I am the more particular in determining the sex of this specimen, as either the sexual distinctions in this genus have been regarded as sectional, or the sexes have been transposed in some recent works on the *Hemiptera.* Of the identity of the sex there can be no question, since, independent of the enlarged size and dilated or cornuted structure of the head of the males, I have extracted the ova from the abdomen of a specimen of an allied species, having the scutellum destitute of the emargination, and the sexual apparatus agreeing with the figures which I have given as those of he female in my paper on this genus in "Charlesworth's Mag. of Nat. Hist.," January, 1838, figs. ii. 5, and iii. 9.

The space between the ocelli is considerably shorter than that between the ocelli and the eyes; the promuscis extends to the base of the second pair of legs, it is slender and 4-jointed, the first and fourth joints the shortest, and the second and third longer, being nearly of equal length.

The first, second, third and fourth ventral segments have a long impressed line on each side, terminating near the margin of the abdomen in a small dot, which might be mistaken for a spiracle, but the true spiracles are present and placed rather in advance of this dot and somewhat nearer to the median line of the body: the fifth segment, which is very much angulated in the middle, has also a short impressed line on each side, but this terminates in the true spiracle, whilst a little in advance of it is a much larger oval patch of short decumbent hairs.

The legs are short and compressed, the tibiæ are especially short, being scarcely longer than the tarsi. The insect is, however, unable to fold up its feet in the same way as the *Histeridæ* as suggested by Mr. White, because there are no impressions on the under surface of the body in which the four hind feet could be lodged.

The insect is nearest allied to *Plataspis coccinelloides* and *coracina*, (to the first of which Messrs. Serville and Amyot restrict the name of *Thyreocoris*, giving the name of *Heterocrates* to the second,) in consequence of having the ocelli placed very close together. In comparison with these insects, and in respect to the characters which Messrs. Serville and Amyot have employed for their genera, the present insect must be considered as a separate genus, and it is therefore proper to add that Mr. White has himself applied the subgeneric name of *Ceratocoris* to it in the Index of Addenda and Corrigenda at the end of the "Entomologist."

Plate XVIII. fig. 1, the insect slightly magnified; 1 *a*, the insect of the natural size seen sideways; 1 *b*, antenna; 1 *c*, fore foot; 1 *d*, extremity of the abdomen seen from above; 1 *e*, underside of the abdomen.

Plataspis (*Aphanopneuma*) *biloba*. (Pl. XVIII. fig. 2.)

Supra obscure lutea, nitida, depressa, subparellela, undique nigro-guttulata, guttulis punctatis; spatio magno bilobo fulvescenti ad basin scutelli, capite ♂ in lobos duos magnos conicos convergentes producto.

Long. corp. lin. 7.

Habitat in Africa tropical. occident. D. Savage.

In Mus. D. Hope.

This insect differs from the other species of this and the adjacent subgenera, which have the ocelli more close together than the distance between them and the eyes, in the more parallel form of the depressed body, in the conical form of the porrected head, and the nearly straight sides of the prothorax; whilst from *Heterocrates coracina* it differs in having the promuscis extending only to the base of the hind legs, with four joints, the first and fourth joints shortest and the second and third longer and nearly of equal length. But the most curious character is the hidden position of the spiracles; there is, indeed, along the lateral margins of the ventral surface of the abdomen, on each side, a lateral row of minute pale spots on the black disc, each of which presents in the centre a little black dot, which at first sight appears like one of the real spiracles; but the latter are quite lateral and placed within the very narrow membranous fold which unites the dorsal and ventral surfaces of the abdomen. It is from this character that I have given the subgeneric name used above. The antennæ in the only specimen which I have seen have only three joints, (not including the radicle between the first and second,) but it is probable that the fourth joint has been broken off; the basal joint is pale luteous, the remainder black. The feet are much more slender than in *Ph. Bucephalus*. The abdomen beneath is very flat and highly polished and black; the femora and tibiæ are luteous; the wings are of a black brown colour, and of the ordinary structure of the genus.

Plate XVIII. fig. 2, the insect slightly magnified; 2 *a*, antenna, with the presumed terminal joint indicated by dots; 2 *b*, apex of the abdomen seen from above; 2 *c*, underside of the abdomen.

Plataspis (*Cantharodes*) *cænosa*, Westw. (Pl. XVIII. fig. 3.)

Supra obscura, sublutescens, opaca, nigro-punctatissima; scutello fasciâ indistinctâ medianâ subpallidiori; capite magno, subconcavo, postice in collum angustato; prothorace antice valde emarginato, lateribus rotundatis, in medio parum angulatis; pedibus subgracilibus.

Long. corp. lin. 8.

Habitat Cape Palmas, Africæ tropic. occid. D. Savage.

This is the largest species of this group of *Scutelleridæ* hitherto detected, and which, in the comparative proximity of the ocelli, enters into Serville and Amyot's first division of the group, subfamily or genus. From the other subgenera it differs in the broad subdepressed form, with the head prominent, nearly semicircular, subconcave above, with a depressed mesial line terminating in a bifid impression, and with the hind part of the head considerably elongated, forming a kind of neck, which is received in the deep emargination of the front of the prothorax. The antennæ are 4-jointed, exclusive of the radicle between the first and second joints; the promuscis extends to between the middle feet; the body above is destitute of gloss, with the front half of the prothorax elevated into four slight bosses; the sides are nearly rounded, but with a slight angulation in the middle; the base of the scutellum is transversely raised in the middle, giving the appearance of a distinct very broad short scutellum; across the middle of the scutellum extends a paler very obsolete fascia, and beyond this are two short nearly obsolete transverse paler streaks. The feet are comparatively slender; the abdomen beneath is not flat, but has a longitudinally central raised part; the spiracles are distinct at the sides of the abdomen within the lateral margins of its ventral surface. The appearance of the anal portion is represented in the figure, which leads me to infer that the specimen before me is a male. As this species will not enter any of the subgenera *Thyreocoris*, as restricted by Serville and Amyot, *Heterocrates*, *Ceratocoris* or *Aphanopneuma*, I have been obliged to form it into a separate subgenus, which, from the resemblance of the insect to certain *Heteromerous* beetles, I have named *Cantharodes*.

Plate XVIII. fig. 3, the insect slightly magnified; 3 *a*, extremity of the abdomen; 3 *b*, underside of abdomen.

EUMENOTES, *Westw.*

Corpus depressum, oblongum. *Caput* latum, antice cornubus duobus planis truncatis, alterisque duobus ante oculos armatum. *Antennæ* satis crassæ, 4-articulatæ; articulo 2ndo reliquis longiori, 4to ovali præcedenti parum breviori. *Promuscis* ad pedes posticos extensa, 4-articulata, articulo 2ndo reliquis longiori, alteris tribus longitudine æqualibus. *Prothorax* antice lateribus rectis, haud capite latior, postice utrinque in angulum parum productus. *Hemelytrorum* corium vena furcata instructum, membrana multi-areolata, marginibus abdominis haud tegentia. *Pedes* simplices.

This genus comes very close to *Amaurus*, Burm. (*Platydius*, Westw. Zool. Journ.; *Megymenum*, Guér.; *Corydius*, De Haan,) in all its more essential characters, but differs entirely in the form of the head and thorax, and in the antennæ not being dilated as in this genus. Unfortunately the locality of the only known individual of the genus is unknown.

Sp. unica. *Eumenotes obscura*, Westw. (Pl. XVIII. fig. 4.)

Obscure brunnea, punctata, apice scutelli rufescenti, membrana apicali hemelytrorum nigricanti, pronoti margine postico transverso deflexo, abdominis lateribus subserratis.

Long. corp. lin. 4.
Habitat ——?
In Mus. Britann.

Plate XVIII. fig. 4, the insect magnified; 4*a*, promuscis.

EPIRODERA,[*] *Westw.*

Genus novum *Enicocephalo* Westw. affine. *Caput* parvum, quasi bipartitum, colloque brevi postice instructum. *Nasus* brevis, porrectus, apice rotundato; parte postica subglobosa antice et postice constricta, ocellos duos gerente. *Antennæ* capite dimidio longiores, graciles, 4-articulatæ; articulo 2ndo longiori, ultimo elongato, ovali, vix precedenti tenuiori. *Promuscis* fere capitis longitudine libera, 3-articulata, articulo intermedio multo longiori. *Prothorax* latissimus, angulis anticis lateralibus porrectis, lateribus inflato-rotundatis, pone medium constrictum, margineque postico bituberculato. *Scutellum* parvum, triangulare. *Hemelytra* abdomen fere tegentia corio parvo, membrana apicale maxima, area magna media venis 4 ad margines emissis. *Abdomen* oblongum, valde deplanatum parallelum, apice rotundato. *Pedes* breves, satis crassi; femoribus crassis, subtus serratis.

This genus is one of those small forms amongst the *Reduviidæ* which possess the appearance of the *Aradi*, and have the antennæ not attenuated at the tips. The rostrum is however free, and the veining of the hemelytral membrane very similar to that of *Enicocephalus* and *Holoptilus*. Another group allied to these

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[*] At the suggestion of Mr. A. White (to whom this paper was referred by the Publication Committee) the name of *Physoderes* given to this genus, as printed in the Journal of Proceedings, has been altered, as being too near to *Physodera*, a subgenus separated from *Lebia*.—*J. O. W.*

insects from Van Diemen's Land has recently been characterized by Dr. Erichson under the name of *Isodermus*, in which the hemelytra are destitute of veins.

Epirodera notata, Westw. (Pl. XVIII. fig. 5.)

Obscure brunneo-fulvescens, pronoto in medio partis anticæ lineis duabus latis parallelis notisque tribus lateralibus obscuris; hemelytris corpore concoloribus membrana fusca abdominibus lateribus detectis, nigro flavoque alternatim coloratis, capitis parte postica obscura; alis posticis fulvis, pronoto subtus concolori nigro vario.

Long. corp. lin. 4½.
Habitat —— ?
In Mus. Britann.

Plate XVIII. fig. 5, the insect magnified; 5 *a*, the head seen sideways.

STENOTOMA, *Westw.*

Genus novum inter *Coreidas Heteropterorum* locandum. *Caput* subtriangulare, lobo antico subconico et ad apicem acute bispinoso, spinis duabus ante oculos porrectis alterisque duabus ad latera capitis locatis. *Oculi* magni; ocelli 2 minuti ad marginem anticum pronoti approximati; promuscis 4-articulata, gracilis, ad basin pedum posticorum extensa, articulo 1mo in canali infero capitis recepto, 2ndo reliquis paullo longiori. *Antennæ* 4-articulatæ, dimidium corporis longitudine superantes, articulo basali brevi, 2ndo clavato setoso, 3tio ovali lato, 4to ovali-oblongo, præcedenti minori et parum breviori. *Pronotum* lateribus pone medium angulatis, marginibus spinosis, parte postica vix elevata. *Scutellum* elongatum, postice attenuatum, subcarinatum. *Hemelytra* abdominis longitudine corio punctato, areola transversa ad basin membranæ apicalis venas 4 longitudinales emittenti, vena altera margine laterali parallela. *Pedes* breves graciles, tarsis 3-articulatis, articulo intermedio minuto. *Abdomen* hemelytris tectum, angulis posticis lateralibus segmentorum acutis.

The name of this genus is derived from the very slender thread-like connexions between the second and third, and third and fourth joints of the antennæ; these are not noticed in the above description; if included they would, together with the

minute radicle connecting the basal joint with the head, raise the number of joints in the antennæ to seven.

Sp. 1. *Stenotoma Desjardinsii*, Westw. (Pl. XVIII. fig. 6.)

Lutea, fulvo-parum-variegata, undique fusco-punctata, antennis fuscis, abdominis lateribus fusco et albido alternatim maculatis.

Long. corp. lin. 3.

Habitat in insula Mauritii. D. Desjardins et Templeton.

In Mus. nostr.

(*An. Phricodus hystrix*,* Spinola in Guér. Mag. Zool. 1840.)

This curious insect is named in honour of its discoverer, the late Julien Desjardins, whose exertions in the cause of science in the distant island of Mauritius merit far greater respect than can be shown by this feeble mark of recognition.

One of my specimens is curiously deformed in one of its antennæ, as represented in the accompanying sketch, the two apical joints being soldered together, and the preceding joint more elongated than in the opposite antenna, as though to make up for the deficiency in the number of joints.

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* P.S. I have added this citation at the suggestion of Mr. A. White. The insect described by the Marquis Spinola is however stated to be a native of the Cape of Good Hope, and is arranged both by him and by M. Germar (in the Rev. Entomol. de Silberman, tom. v. p. 134, No. 34) as one of the *Aradites*, the antennæ being described as 4-jointed, the first extremely minute and basal, the second small and pear-shaped, the third long and clavate, and the fourth very minute and setaceous. Upon this mode of computation the left hand antennæ of the insect above described by me must be considered as having seven joints. The learned Marquis has moreover represented his insect as not possessed of two ocelli, nor as having the closed cell at the base of the membranaceous part of the hemelytra. The head moreover in my insect does not exhibit the two deep circular impressions between the eyes, seen in M. Spinola's figure of *Phricodus hystrix*.

XXXIX. *Observations on the Fossil Insects of Aix in Provence, with Descriptions and Figures of Three Species. By the* Rev. F. W. Hope, F.R.S., P.E.S.

[Read 5th August, 1844.]

In my late visit to the Continent, besides amassing a rich collection of recent insects, my attention was also directed to those which for some period or periods have been entombed in a fossil state. The major part were obtained at Aix in Provence, and at Sinigaglia in Italy.

It is not my intention at present to describe any of the latter formation, and I only at present figure three from the former locality, being doubtful if they will interest the Entomological Society equally as much as existing and recent species.

Little I believe has been written on the fossil insects of Aix, excepting a memoir by Marcel de Serres* and Mr. Murchison, and some notices by Mr. J. Curtis, published in 1831 or 1832. Heinrich Georg Bronn, in his "Lethæa Geognostica,"† (published in 1838,) gives in his second volume a catalogue of the genera which have been discovered at Aix; and as it is a work little known to many of us, I insert the list of names there published, adding the letter B to designate those with which he was acquainted, and the letter H to particularize those which have fallen under my inspection.

COLEOPTERA.

	Genera.		Remarks.
1	*Harpalus*, B. & H.‡..	1	An insect resembling *Harpalus ruficornis*, only smaller.
2	*Helobia*, H...........	2	The elytra closely resemble that genus.
3	*Dyticus*, B.	3	
4	*Colymbetes*, H.	4	An insect similar to *C. striatus*, and I have seen some specimens resembling *Hiphydrus*.
5	*Hydrobius*, B. & H. ..	5	Some specimens are closely allied to *H. fuscipes*.
6	*Staphylinus*, B. & H. .	6	Apparently three distinct genera.
7	*Lathrobium*, B.	7	
8	*Sisyphus*, B.	8	
9	*Pachypus*, B.	9	

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* Marcel de Serres mentions 62 genera of Insects; vide "Géolog. des Tertiares du Midi de la France."

† "Lethæa Geognostica, von Heinrich Georg Bronn," in 2 vols. 8vo. published in 1838.

‡ *B.* alludes to the species mentioned in Bronn's Catalogue, and *H.* those which have fallen under the inspection of Mr. Hope.

COLEOPTERA—*continued.*

	GENERA.		Remarks.
10	*Geotrupes?* H.	10	
11	*Melolontha*, B. & H.	11	Single elytra, chiefly like *Rhisotrogus*.
12	*Cetonia*, B.	12	I heard of some examples, but never saw a specimen.
13	*Buprestis*, B. & H.	13	Small, with acuminated elytra.
14	*Elater*, H.	14	One *Elater* allied to *niger*; two distinct species.
15	*Atopa*, H.	15	Probably *Atopa cervina*, only darker.
16	*Ptinus*, B.	16	Unseen by me.
17	*Sepidium*, B.	17	Elytra similar certainly, and yet I doubt the genus.
18	*Opatrum*, B. & H.	18	Not uncommon; one species is elongated and small.
19	*Asida*, B. & H.	19	Probably two or three species.
20	*Bruchus*, B.	20	
21	*Apion*, B.	21	
22	*Rhynchites*, H.	22	A dark species.
23	*Sitona*, B.	23	
24	*Lixus*, H.	24	Several; they vary much in size.
25	*Cleonis*, B. & H.	25	
26	*Balaninus*, H.	26	Very fine; one figured.
27	*Cionus*, B.	27	
28	*Brachycerus*, B. & H.	28	A species approaching an African form; at least I know no European species like it.
29	*Rhynchænus*, H.	29	
30	*Meleus*, B.	30	
31	*Hypera*, B. & H.	31	
32	*Naupactus*, B.	32	
33	*Rhinobatus*, B. & H.	33	Allied to *Cynaræ*, but smaller.
34	*Dorytomus*, B.	34	
35	*Apate*, B. & H.	35	
36	*Scolytus*, B. & H.	36	In colour like recent insects.
37	*Hylurgus*, B.	37	Probably a genus allied to *Hylurgus*.
38	*Bostrichus*, H.	38	Dark, sometimes pitchy.
39	*Trogosita*, B. & H.	39	A form very similar; ferruginous; one very perfect.
40	*Ips*, B.	40	
41	*Callidium*, B.	41	I saw three specimens of some longicorns, but too imperfect to make out the genera.
42	*Cassida*, B. & H.	42	The species is very small.
43	*Chrysomela*, B. & H.	43	Three or four species, one deeply punctured.
44	*Coccinella*, H.	44	One with four black guttæ.
	ORTHOPTERA.		
45	*Forficula*, B. & H.	45	Only the forceps.
46	*Gryllus*, B. & H.	46	Legs and wings.
47	*Gryllotalpa*, B.	47	
48	*Acheta*, B. & H.	48	Much injured; several species probably.
49	*Locustæ*, B. & H.	49	
50	*Tridactylus*, B.	50	
	HYMENOPTERA.		
51	*Tenthredo*(*Selandria*), B.	51	
52	*Pimpla*, B.	52	
53	*Ichneumon*, B. & H.	53	
54	*Cryptus*, B.	54	

HYMENOPTERA—*continued.*

	Genera.		Remarks.
55	*Agathis*, B.	55	
56	*Anomalon*, B. & H.	56	I met with three specimens.
57	*Ophion*, B.	57	
58	*Polistes*, B.	58	
59	*Vespa*, H.	59	A *Vespa*, if not a *Polistes*.
60	*Formica*, B. & H.	60	A dark species.
61	*Chalcididæ*, H.	61	Several.

NEUROPTERA.

62	*Libellula*, B. & H.	62	Wings of more species than one.
63	*Agrion*, H.	63	
64	*Phryganea* (and larvæ), B. & H.	64	

HEMIPTERA.

65	*Pentatoma*, B. & H.	65	Several species.
66	*Coreus*, B. & H.	66	Apparently three species, one black.
67	*Lygæus*, B. & H.	67	Several species.
68	*Miris*, B.	68	
69	*Syrtis*, B.	69	
70	*Tingis*, B. & H.	70	Somewhat resembling *Cardui*.
71	*Aradus*, B. & H.	71	Closely like *Corticalis*.
72	*Corizus*, Hope	72	One figured.
73	*Reduvius*, B. & H.	73	Certainly different species, if not genera also.
74	*Ploiaria*, B.	74	
75	*Gerris*, B. & H.	75	*Gerris?*
76	*Notonecta*, H.	76	A small species, nearly white.
77	*Nepa*, B.	77	
78	*Ranatra*, H.?	78	A form resembling *Ranatra*.
79	*Cicada*, B.—H.?	79	
80	*Delphax*, B.?	80	
81	*Cercopis*, B.	81	
82	*Tettigonia*, B.	82	
83	*Thrips*, B.	83	
84	*Aphis*, B. & H.	84	A mass of insects resembling *Aphidæ*.

LEPIDOPTERA.

85	*Satyrus*, B.	85	
86	*Zygæna*, B.	86	
87	*Sesia*, B.	87	
88	*Bombyx*, B. & H.?	88	Part of a wing of a *Bombyx*.

DIPTERA.

89	*Mycetophila*, B. & H.	89	Wings expanded.
90	*Rhingia*, H.	90	
91	*Bibio?* H.? B.	91	
92	*Hirtæa*, B. & H.	92	*Hirtæa* in copula.
93	*Tabanus*, B. & H.	93	A black species.
94	*Sargus*, B.—H.?	94	
95	*Ceratopogon*, B. & H.	95	
96	*Nephrotoma*, B.	96	
97	*Limnobia*, B. & H.	97	Very perfect.
98	*Corethra*, H.	98	

DIPTERA—*continued.*

	Genera.		Remarks.
99	*Trichocera*, B.	99	Very delicate.
100	*Platyura*, B.	100	
101	*Sciara*, B.	101	
102	*Scatops*, B. & H.......	102	
103	*Penthetria*, B.	103	
104	*Dilophus*, B.	104	
105	*Anisopus*, B.	105	
106	*Asilus*, B.—H.?......	106	Most likely part of an *Asilus*.
107	*Empis*, B. & H.......	107	
108	*Nemestrina*, B.	108	
109	*Xylophagus*, B.	109	
110	*Oxycera*, B.	110	
111	*Nemotelus*, B. & H. ..	111	
112	*Aphritis*, B.	112	
113	*Tipula*, H.?	113	A species allied to *rivosa*.

In addition to the 113 genera given in the above tables, many others might easily be mentioned, and when all the specimens I collected reach this country the catalogue will be considerably increased. Amongst the *Arachnida* I have noticed an elongated species of *Chelifer*, and in the *Myriapoda*, *Julus* and *Scolopendra;* in *Insecta*, there are about twenty genera added, hitherto I believe unnoticed by any individual; and from the numerous specimens in the hands of geologists and others, many more may yet be expected to occur.

Before I attempt to describe the few species I have had figured, I must refer the Entomologist, for an account of the formation of Aix, to the writings of Murchison, Philips and Lyell. Some few remarks, derived from persons living on the spot, are also added. As my intended cicerone, in a visit to the fossil beds, was a medical man, and happened to be called away on more important matters than hunting for fossils, I had not during my stay another opportunity of visiting the spot myself, and therefore I was obliged to commit to paper the few observations I gleaned from my friends in conversation.

The fossil insects are generally found in two laminated beds, each stratum rarely exceeding two inches in thickness, the stone itself looking like that which is commonly used in lithography; a third bed is also reported to have been discovered, but as it is not equally rich in specimens as the two uppermost beds, much attention has not been bestowed upon it. Each of the above seams (if that word may be used) is composed of various thin laminæ, differing in thickness, and on their surface the major part of the insects are imbedded. Of the various specimens of rock which I examined and split into laminæ, the two upper appeared to contain a much larger proportion of insects than the remainder, and the second from the top afforded generally specimens of plants half carbonized; some of the fossil insects were also of a ferruginous and ochreous colour. Terrestrial and aquatic species are mingled together. Some of the *Coleoptera* are frequently without their antennæ, femora and tarsi, and appear, from their contorted position and mutilation of limbs, to have struggled hard to avoid their inhumation. The *Diptera*, on the contrary, which are amongst the most elegant fossils known, seem to be uninjured, and in great perfection; indeed it is difficult to imagine how such delicately attenuated fragile forms (with limbs scarcely thicker than gossamer silk) are found in any state of preservation. The presence of the genera *Limnobia*, *Corethra*, *Trichocera* and *Tipula*, lead one to the conclusion that the waters, if they carried the insects down in their course, must have very gradually and gently subsided. I cannot help thinking, from the perfect state in which many of them appear, that the insects (as the waters were absorbed) settled on the slimy deposit, and instantly became enveloped: another flood would bring down an increase of sediment, and cover the insects entirely; in such a way apparently the different laminæ were formed, and the insects preserved. In concluding these remarks I have only to add, that if the present paper is thought worthy of the attention of the Society, I shall have some other opportunities of adding to these observations, and give also some account of the fossil insects of Sinigaglia, a locality nearly as rich as Aix, but one which, from inquiries, seems to be scarcely known in England.

DESCRIPTIONS OF THREE FOSSIL SPECIES OF INSECTS.

Sp. 1. *Balaninus Barthelemyi*, Hope. Aix.

(Pl. XIX. fig. 1.)

Faunicolor, rostro crasso, subtilissime punctato, thorace convexo, confertissime tuberculato, tuberculis rotundatis, elytrisque striato-sulcatis, striis punctis elevatis serie dispositis.

Long. lin. 4½, lat. lin. 1⅔.

The above specimen was given me by Monsieur Barthelemy of Marseilles; it is named in honour of that zealous naturalist. It appears, from the state of the proboscis and fragments of the femora, to have suffered much from abrasion. In colour it closely resembles some recent species still found in the vicinity of Aix.

Sp. 2. *Rhynchænus? Solieri*, Hope. Aix.
(Pl. XIX. fig. 2.)

Fuscus, rostro subcanaliculato, thorace convexo, subtilissime punctato, elytrisque striatis, punctisque elevatis serie dispositis, corpore infraque punctulato.

Long. lin. 3¼, lat. lin. 1¼.

The above fossil is named after the celebrated Entomologist of Marseilles, Monsieur Solier, whose invaluable writings on the *Heteromera* deserve the highest encomium. The specimen appears, from the broken off tibiæ and distorted position of the posterior right leg, to have struggled much previous to its death. The punctures on the elytra are delicately reticulated.

Sp. 3. *Corizus Boyeri*, Hope. Aix.
(Pl. XIX. fig. 3.)

Faunicolor, antennis extrorsum increscentibus, capite fere rotundato, oculis prominentibus; thorace fere quadrato, lateribus externis parum gibbosis; scutellum magnum, sparsim punctatum; pedibus femoribus posticis parum incrassatis.

Long. lin. 4, lat. lin. 1¼.

The above specimen is named in honour of Monsieur Boyer of Aix, to whom I am indebted for much valuable information respecting the fossil insects of Aix.

XL. *On the Economy of the Genus* Palmon *of Dalman, with Descriptions of several Species belonging thereto.*

By J. O. Westwood, F.L.S., &c.

[Read 5th March, 1844.]

At the meeting of the Linnæan Society on the 6th February last, a very interesting paper was read by J. Curtis, Esq., F.L.S., containing descriptions of two singular nests of Hymenopterous insects, which he had recently obtained from Brazil: one of them consisted of a very numerous assemblage of the cocoons of a Tenthredinideous insect so closely packed together that when transversely cut the mass had very much the appearance of a piece of honeycomb, many of the cells being hexagonal, pentagonal, &c.; the whole was enclosed in a thick cottony covering, evidently spun by the larvæ in common, previous to the formation of the cocoons; and Mr. Curtis was led to believe that the object of this covering was to prevent *Ichneumon* flies, of which there is a vast number of species in Brazil, from depositing their eggs in the cocoons enclosed within. The great resemblance which exists between the appearance of the mass of cocoons described by Mr. Curtis and the masses of eggs of the *Mantidæ*, at once called to my mind some insects in my collection which at once disproved this suggestion of Mr. Curtis; and as they belong to a genus to whose history some interest is attached, I beg leave to offer the following remarks upon, and descriptions of them to the Entomological Society.

The instinct by which the females of the parasitic families *Ichneumonidæ*, *Chalcididæ* and *Proctotrupidæ* are taught to deposit their eggs in the most seemingly secure retreats of their prey, is one of the greatest interest. That species of *Chalcididæ*, for instance, not possessing exserted ovipositors, should be enabled to detect their prey and penetrate the thick solid galls of the willow leaf or the hard egg-cases of the *Blattæ*, is not more worthy of attention than that other species possessing long exserted but extremely delicate ovipositors should be able to penetrate the woolly bedeguar or the thick flossy outer covering of the eggs of the *Mantidæ*, and yet all these circumstances take place.

In addition to a short notice by myself in the second volume of my "Modern Classification of Insects," the only statement I have hitherto met with respecting the last mentioned circumstance is the following, published by an anonymous writer in the Entomological Magazine, vol. iii. p. 178, " During the winter of 1834 I observed in Cephalonia on grass, the asphodel and other plants, particularly in marshes, brown ovoid masses resembling the cocoons of small moths, and on examining them more closely found that they were tough brownish white, composed of layers of scales placed with great regularity, and forming cells in series; the cells contained a yellowish liquid like the yolk of an egg. Having several specimens I detected in one a minute white grub in some of its cells: this was in December, 1833. On the 27th of May, happening to look at one which lay in my desk, I observed four or five minute *Chalcidæ* settled on it, and upon opening it to discover whether they were the real occupants or intruders, I discovered several emerging and perfectly formed. They are minute, about two lines in length, not including the ovipositor, black, with part of the body and the feet reddish, hinder legs variegated and thighs thickly incrassated, eyes red, antennæ clavate, oviduct exserted and twice the length of the body. It appeared to make fully as much use of its hind legs as of its wings, leaping to a considerable distance. In some specimens the oviduct was four times the length of the body and recurved. On the 24th May I found several young *Mantes* in the desk, and removing them I placed one of the excrescences under a tumbler where it would not be disturbed for a few days; several young *Mantes oratoriæ* made their appearance, which removed all doubts as to the excrescence not being a mass of eggs. The young *Mantes* devoured each other, and the number diminishing I let them out."

The short description of the parasites contained in the preceding account is sufficient at once to point out the generic group to which they belong; an elongated exserted ovipositor, incrassated hind thighs and clavate antennæ, being the characters of the genus *Palmon* of Dalman, founded in the Swedish Transactions for 1825 upon three species, observed only by that author in gum copal, and which were considered by him as intermediate between the genera *Leucospis* and *Torymus* (*Callimome*, Spin.) This treatise of Dalman has been overlooked by Mr. Walker in his various monographs upon this family, in one of which (Entom. Mag. vol. i. p. 118) he has evidently described a species of this group from the south of France under the name of *Priomerus pachymerus*, and of which a beautiful figure by Mr. Haliday was published in the "Entomologist."

Having received several species of this genus, natives of Brazil,

the Isle of France, King George's Sound, Austria and Egypt from Dr. Klug, M. V. Andouin, and other distinguished Entomologists, I shall terminate this notice with a description of them and the other species noticed by the previous authors above mentioned.

Sp. 1. *Palmon bellator*, Dalman, in Kongl. Vetensk. nya Handl. (Swedish Trans. 1825, p. 390, tab. v. fig. 21, 22, 23.)

Cyaneus, abdomine pedibusque pallide ferrugineis; femoribus posticis concoloribus multidenticulatis, denticulis circiter 9 obscuris inæqualibus, antennarum scapo flavo, flagelli clava maxima brunnea, quam caput longiore; alis hyalinis, colore fuliginoso diluto tinctis, nervo ordinario ramuloque stigmaticali obscurioribus.

Long. vix 1½ lin. Paris. ovid. except.
Habitat in gum copal.

Sp. 2. *Palmon clavellatus*, Dalm., ut supra, tab. v. fig. 24.

Obscure cyaneus, abdomine brunneo, apice obscuro; pedibus ferrugineis, femoribus obscurioribus, posticis nigricantibus, multidentatis, antennarum flagello ferrugineo longitudine capitis sesquialtera, clava brunnea quam caput multo breviore ♀.

Magn. *P. bellatoris.*
Habitat in gum copal.

Sp. 3. *Palmon capitellatus*, Dalman, ut supra.

Obscure cyaneus, abdomine brunneo, apice obscuriore; pedibus ferrugineis, femoribus obscurioribus, posticis nigricantibus multidenticulatis, antennarum flagello flavo, gracile, capite duplo longiore clava oblonga brunnea, flagelli vix tertiam partem efficiente ♀.

Statura *P. clavellati.*
Habitat in gum copal.

Sp. 4. *Palmon pachymerus.*

Priomerus pachymerus, Walker, in Ent. Mag. i. 118.

Nigro-viridis, abdomine æneo-viridi, oviductu corpore dimidio longiore, antennis fuscis, pedibus rufis, alis subhyalinis, oculis ocellisque rufis, antennarum clava nigra; scapo rufo, abdomine

subtus rufo, coxis nigro-viridibus, thoracis disco obscure viridi, marginibus magis nitidis (♀).
Exp. alar. lin. 1¾.
Habitat in Gallia meridionali mense Julio.

Sp. 5. *Palmon religiosus*, Westw. (Tab. nostr. X. fig. 23, and details.)

Niger, subæneus; thorace tenuissime punctato; antennis nigricantibus, articulo basali luteo; abdomine piceo, subtus magis luteo, dorso æneo-tincto nitido; pedibus luteis, coxis posticis dentibusque femorum posticorum nigris, oviductu corpore ferè dimidio longiori (♀).
Long. corp. lin. 1½.
Habitat in ovis *Mantidis religiosæ*. D. Kollar.
In Mus. D. Hope.

The female of this species is represented in Plate X. fig. 23, its natural size being indicated by the lines on the left side of fig. 23*c*. Figure 23*a* represents one of the mandibles, which is short, thick and obtusely tridentate; 23*b*, one of the maxillæ, with its four-jointed palpus; 23*c*, the mentum, with the ovate labium at its extremity, and the labial palpi, which are three-jointed and as long as the labium; 23*d*, one of the twelve-jointed antennæ, the three terminal joints forming a club and the second and third joints being separated by a minute annulus. These organs are inserted in the middle of the face between the eyes within a round slight common depression, the basal joint of the antenna reaching as high as the forehead; the anterior feet are simple, with the femora rather thickened in the middle; the calcar curved; the tarsi rather longer than the tibiæ, five-jointed and slender; the middle feet are slender, with the tibiæ as long as the tarsi, the calcar short and straight and very slender; and the hind feet (fig. 23*e*) have the femora incrassated and toothed; the tibiæ curved and terminating in a spine, spinulate within and having the minute calcar at its tip.

Sp. 6. *Palmon insularis*, Westw.

Cupreo-nigricans, vix tenuissime punctatus, collare magis cuprescenti; antennis nigricantibus, basi fuscis; abdomine chalybæo nitido, basi subluteo, oviductu vix corporis longitudine; pedibus anticis albidis, femoribus in medio infumatis, coxis et femoribus posticis cupreo-æneis apice tarsisque albidis (♀).
Long. corp. lin. 1½.
Habitat in ovis *Mantidis* ex "Ile de France." D. V. Audouin.
In Mus. Westwood.

Sp. 7. *Palmon fraternus*, Westw.

Cæruleo-viridis, tenuissime punctatus; antennis crassiusculis, luteis, apice fuscescentibus; abdomine purpureo nitidissimo, subtus luteo, oviductu abbreviato, pedibus luteo-fulvis; coxis et femoribus posticis æneis vel chalybæis, apice extremo luteis (♂ ♀).

Long. corp. lin. 1¼.

Habitat cum præcedenti.

In Mus. Westwood.

Sp. 8. *Palmon obscurus*, Westw.

Niger, æneo-vix-tinctus, fere lævis, opacus; antennis nigris, basi articuli 1mi luteo, articulo apicali albido; abdomine nigro submetallico, nitido, oviductu corpore fere dimidio longiori; pedibus 4 anticis piceo-luteis, posticis nigricanti-æneis, dentibus validis, tarsis luteis (♀).

Long. corp. lin. 1½.

Habitat King George's Sound. D. Dr. J. Hooker.

In Mus. Westwood.

Sp. 9. *Palmon melleus*, Westw.

Læte aurato-viridis, punctatissimus; abdomine melleo; antennis crassis, melleis, apice fuscis; pedibus melleis, coxis posticis basi viridibus spinisque femorum posticorum nigris (♂).

Long. corp. fere lin. 2.

Habitat in ovis *Mantidis Brasiliæ*. D. Klug.

In Mus. Westwood.

Sp. 10. *Palmon Olenus*, Walker, Mon. Chalc. 2, p. 7.

Æneo-viridis, antennis fulvis, abdomine cyaneo et cupreo-vario, subtus fulvo; pedibus fusco-fulvis, femoribus coxisque viridibus, tibiis fuscis, alis limpidis, oviductu rufo, vaginis nigris (♀).

Long. corp. lin. 2, exp. alar. lin. 2½.

Habitat Sydney, New South Wales.

Subgenus novum, PACHYTOMUS, *Westw.*

Palmoni congruit nisi abdomine maris plano depresso-elongato, spinisque femorum posticorum tantum 4,* articulo basali

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* The figure at the left hand corner of the bottom of Plate X. represents the extremity of the fore tibiæ, with its tarsus.

tarsorum omnium dilatato, necnon œconomia specierum quæ in ficubus more *Blastophagorum* habitant.

Sp. 1. *Pachytomus Klugianus*, Westw.

Cupreo-æneus, tenuissime punctatissimus; antennis basi tantum luteis, abdomine piceo-fulvo, apice nigricanti; pedibus 4 anticis pallide flavescentibus, posticis piceis, geniculis luteis.
Long. corp. lin. 1½.
Habitat in ficubus Ægypti. D. Klug.
In Mus. Westwood.

XLI. *On the Habits of the Genus* Sialis. *By* W. F. Evans, Esq.

[Read 25th April, 1844.]

As THE habits of some of our most common insects appear to be little known, I have thought that the following observations on the natural history of the *Sialis lutarius* may probably be new and not entirely devoid of interest.

On the 25th of April I found, on the rushes round the margin of a small pond, a great many patches of eggs, and shortly observed many of the *Sialis lutarius* depositing them.

They form large patches of from two to three inches in length, generally encircling the whole rush near the top, but sometimes deposited on one side only, and extended to about a line in breadth.

I counted 100 in a square line, so that each batch may be fairly considered to contain from 2000 to 3000 eggs; the greater portion of which must consequently perish either in the egg or larva state; as, common as the insect is, and widely distributed throughout the country, we should be perfectly overwhelmed with the swarms of the perfect insect if such were permitted, when it is considered that round this one small pond there could not have been less than 100 patches of them.

The eggs are of a very singular form, and placed in a slanting position (Pl. XIX. fig. 4).

The females, whilst depositing them, appeared perfectly motionless on the rush, and varied considerably in size, being from five lines to nearly double that in length. Some parts of the patches of eggs are of a much lighter colour than the rest.

On the third of May I found many of the eggs hatching, the little larvæ tumbling about in great numbers, with their bodies erected like the *Staphylinidæ.*

On putting them into water they swam about with the greatest activity, wriggling and undulating their bodies about much like a serpent or the tadpoles, and working their legs at the same time.

Their heads are remarkably large; but I have thought the accompanying sketch (Plate XIX. fig. 5) will better pourtray them than a written description, and I have also brought some of them alive and some eggs for exhibition.

XLII. *Remarks on the Entomology of New Zealand.* By Wm. Stephenson, Esq., Surgeon.

[Read 2d December, 1844.]

As the effects of insects, in harmonizing the productions of the earth in the grand scheme of the Omnipotent Being, are perhaps as much or even more conspicuous in New Zealand than in any other country, a few cursory remarks on the Entomology of these unexplored islands (drawn from observation on the spot) would no doubt be received with interest, had the task devolved upon one more capable of doing it justice.

It has been asserted in print that New Zealand affords few insects, but I am prepared with facts to prove that in those islands they abound in certain tribes; and the preponderance of some over that of others, in conjunction with divergency of form, will give an idea of the peculiarities of New Zealand Entomology. They are proportioned to the utility which each genus, tribe or family performs in a primeval world, where all is seen undisturbed by man. In this country, where vegetation is but slightly checked in winter by the frost, the face of which is extremely hilly, with deep precipitous ravines intervening, upon which there is a profusion of rain at all seasons, it may naturally be expected to be found as it is, viz. clothed with the most gigantic forms of vegetation.

The country is subject to frequent and very hard gales of wind, which tear up by the roots huge trees, mostly of hard wood, that being the general nature of New Zealand timber. These at different periods are sooner or later attacked by insects depositing their ova upon them in swarms, verified by observed effects. They are principally of the order *Coleoptera,* as far as my observations went, but Lepidopterous larvæ were also found in very limited proportions. The larvæ soon perforate the robust trunks and branches of these monsters of the forest, in order evidently to allow the moisture to penetrate for the purpose of hastening their decomposition; a further proof of which is afforded by the difference of time in which some of the species arrive at the imago state to that of others. I have noticed that the smaller species of *Coleoptera,* in their larva state, feed more superficially on the bark and soft exterior of the wood; but the larger ones, and some *Lepidoptera,* perforate, as with an auger, to the heart of the tree, increasing the caliber with the growth of the larvæ. The former I believe, in many instances, pass into the pupa state in one season, but the latter frequently remain three or more years previous to that change.

This seems ordained, in order to hasten the decay of the exterior, whilst the harder and more durable substance is being perforated more and more, in order to admit air and moisture. These borings are partially filled up by the excrementitious matter of the larvæ, which detains the water, and keeps the adjacent parts in perpetual moisture, materially hastening their decay. No sooner is a tree deprived of vitality, than it is attacked in rotation by various tribes of Coleopterous insects, the effects of which may be observed at any time in hundreds of instances, after they have accomplished their final change, and eaten their way out through the bark, in order to perform the duty of continuing the species.

The *Tetramera,* or Phytivorous beetles, seem to form three-fourths of the *Coleoptera* of New Zealand. I could only find two species of *Cicindela;* the larger is rather numerous on dry footpaths; the smaller, of which I have only one specimen, was taken on a path in a wood; but I have seen others in similar situations with the first, but they are rare. In *Carabidæ* few species are to be found, and those thinly scattered. Aquatic *Coleoptera* were few in the localities which I visited.

In *Brachelytera* three or four species were procured, inhabiting decayed vegetable matter, putrid carcases, &c. In *Serricornia* the *Elateridæ* are rather more numerous; two or three species were collected. No *Buprestidæ* could any where be found or heard of, yet I cannot but believe they do exist; but New Zealand being a country not abounding in flowers, and as I left before the height of summer, it might have been too early for their appearance. I made every inquiry amongst woodcutters, timber merchants, &c. but could nowhere hear of any insect resembling them; and as they are frequently clothed in rich colours, they are objects of attraction to even unentomological eyes. I conclude, therefore, that if they do exist, they must either be very rare, or of obscure and sombre colours. The *Clavicornia* are not numerous; a few interesting examples are the specimens of *Lucanidæ*, and were taken under bark and rubbish at the roots of trees, but require very diligent search. I was informed that, in the valley of the Hut River, a much larger species had been observed. A species, (*Mitophyllus irroratus*, Parry,) the lamellæ of whose antennæ (three in number) are as long as the rest of these organs, with projections from the anterior part of the head, in a vertical direction, resembling in this respect the *Goliathus*, was found under bark. The few examples of *Cetonia* which I procured were taken in promiscuous places, to which they had accidentally fled. I searched and beat all the flowering shrubs and trees in vain; they are evidently rare.

I could find no traces of *Geotrupidæ*, unless a small roundish, obscurely marked insect,—of which I took a considerable number under the rejectamenta of the sea, sometimes buried in the sand to the depth of six inches,—be considered one. I found under dry cowdung some small black species, resembling *Harpalus*, but which I believe had only made a common sheltering place thereof.

In *Heteromera* I found but two or three examples under bark, near the roots of decayed trees, but they are scarce. In *Tetramera* the numbers must be immense, from observed effects. The *Curculionidæ* are in some instances of singular form, and considerable beauty; all of which, as far as I observed, are wood-feeders. Two large rostrated species, allied to *Brentus*, feed in the larvæ state on the hard internal part of a tree, called, by the Maories, Pukatea, and are very abundant, but not easily procured. The *Longicorns* are also very abundant, particularly a large species, found in all its stages in the Kaikhatea (Dacrydium excelsum) in profusion; both the larva and pupa of this insect are sought after and eaten by the Maories, either in a raw state, or half roasted in hot ashes; I have seen them swallowed by scores, and pronounced *ka pai* (very good); all the remaining species were taken in or upon slightly decomposed wood, except two, one of which was taken by sweeping herbage, and the latter on a man's arm. An example or two of *Coccinellæ* were captured, but they are rarely seen.

The *Forficulæ* are not numerous; two species were found under rubbish.

In *Hymenoptera* I observed only about seven or eight species, amongst which was a bee, with large burthens of farina on its hind legs; but where it nidifies, and whether or not it produces honey, are questions that no doubt will soon be solved by the Rev. Mr. Cotton, present chaplain to the bishop, whose writings on Apiology are well known. In *Neuroptera* I observed five or six species of *Libellulæ;* three were captured; but the high winds, and their instinctive alertness, prevented further success. In *Homoptera* three species of *Cicada* were found; the largest is a numerous species, and in fine weather makes a continual chirruping noise, which may be heard at a great distance on low brushwood, and on the Phormium tenax. A peculiarly formidable insect, allied to *Gryllus* (*Deinacrida*, White), is found in old trees, secreting itself in rents and crevices; it is an abundant species, and carnivorous; called by the Maories *Weta*. The male is distinguished from the other sex by its enormous head, the bite of which is very severe; both sexes are apterous, the female very prolific in ova. I have seen two other species of this genus, the others I lost; they are rare; habitat as the first, but not in society with it; all apterous. The small grasshoppers are most numerous, and afford many obscurely marked species. In *Diptera*, the carrion flies perform a more important part in nature, as scavengers in New Zealand, than I have observed in any other country; they are large and very numerous, depositing living maggots. There is also a yellowish coloured one, which also deposits living maggots; these arrive to the pupa state in six days, and to that of the imago in nine and a half days from the time of ejectment.

The *Tipulidæ* are rather numerous and ornamental. Musquitoes abound in some localities; the species is of one obscure black colour. In *Lepidoptera* there are decidedly few species; in *Diurna* I have seen about seven; in *Noctuidæ* they are much more numerous, but the high winds, together with the economy of the larvæ, renders them very difficult to procure. There is a large caterpillar of a Lepidopterous insect, found feeding upon the stem and roots of the brassica, and other tribes of culinary vegetables. These are of a large size, nearly black; are nocturnal feeders, burrowing in the earth during the day; it appears to be an *Hepialus*, and is very destructive to gardens, &c.

The entomological climate of New Zealand would agree with the third of that of Latreille, and it is interesting to find a similarity or approximation in species to some of the British ones, although separated by 174° of east longitude.

Amongst the diurnal *Lepidoptera* the Painted Lady is the most numerous; and there is a resemblance in another species to our Red Admiral, the principal difference being in an ocellated spot on the underside of the superior wings, connecting this with *Vanessa Io*. In the *Coleoptera* there are approximating species, particularly amongst *Carabi;* but there is a wide difference, in proportion to numbers, in different orders of insects in general. The *Coleoptera* preponderate greatly over all others, not so much in the number of species perhaps, as in the aggregate; but even this inequality might be expected, where the natural decay of large trees is to be completed.

The figure in Pl. XIX. 6, is a rough sketch of a supposed larva found in abundance in old potato grounds, about six or eight inches beneath the surface, at Motuaka, Nelson district, New Zealand. They are supposed to feed on the roots of the sow thistle, which is very common in such situations, because on their being crushed they contain a bland milky semi-fluid.* I submit this to the notice of Entomologists, on the authority of a gentleman of strict veracity, who has left a friend and relation on the spot, from whom I have not the least doubt specimens may be obtained.

When the observer contemplates the grand scheme of Omnipotence, as displayed in adjusting and proportioning the quantities of order, family or tribe, with the effects they are destined to perform, together with their beautifully varied organization, as best befitting their economy, he cannot but feel a sublimity of thought unknown or unappreciated by unentomological minds. Insects, in common with the rest of the animated tribes, keep each other in check; and in addition to this, they perform the most herculean effects in the conversion of huge masses of hard timber into its mother earth, in order to fit it for reproduction, which they effect in an incredible short space of time; and thus the grand system is continued in a series of circumvolutions, independent of the aid of mankind.

The collector of insects has many insurmountable difficulties to cope with in New Zealand, which renders his efforts very unproductive.

In the first place, their food is so very abundant, that you must labour long and hard for few specimens. A powerful digger, such as I possessed, was of little comparative use. I have been stripping off bark, digging in rotten wood and at the roots of trees, for hours at a time, with no better success than two or three specimens, and yet the larvæ abound.

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* This has more the appearance of an impregnated female, of an alliance to the *Termites;* they are seen of all sizes.

Again, travelling is very difficult and laborious, rendering it impossible to pursue a specimen on the wing with success.

I have examined trunks of trees in search of *Longicorns*, &c. but could find very few Coleopterous insects in the day-time in exposed situations. The gigantic lychens, parasites, &c. are so numerous on the old trees, in which they secrete themselves, and these being frequently from fifty to sixty feet high, renders it next to impossible to examine them. The night-trap, of which I exhibited a model, would have been useful in sheltered places, or in calm nights (which are rare), but I could not get one made in Port Nicholson. I was compelled to give up collecting objects of natural history, and therefore took my departure, after a short residence of four months. It is my intention to proceed out to some other country more prolific in specimens with as little delay as possible; but have not yet determined whether it shall be to California, Mexico or New Holland.

XLIII. *On* Pleomorpha, *a Genus of minute* Chrysomelidæ *from Australia*. *By* W. W. Saunders, Esq., F.L.S., &c.

[Read 1st September, 1845.]

Genus Pleomorpha (πλεος, μορφη).

Head vertical, nearly circular, with the mandibles more or less projecting, immersed in the thorax nearly up to the eyes. *Eyes* oval, elongate, with a slight sinus on the interior margin. *Antennæ* short, not half the length of the body, placed wide apart close to the eyes, 11-jointed: 1st joint long, robust, pyriform; 2nd, short, turbinate, robust; 3rd—6th, slender, gradually increasing in length; 7th—10th, broad, triangular, forming with the broad terminal ovate joint a long serrated clava, terminal joint with a minute knob or accessory joint at the apex. *Thorax* transverse, rounded and gibbous in front, as broad as the elytra, with the centre of the hinder margin produced into a very obtuse angle posteriorly. *Scutellum* small, flat, oblong, ovate. *Body* cylindrical, short, abruptly truncate. *Elytra* rounded at the apex, forming with the thorax a very obtuse oval. *Legs* robust, the anterior pair elongate in the males? *Tarsi* 4-jointed, 1st, 2nd and 3rd joints broad, transverse; the latter deeply bifid, the terminal joint cylindrical, clavate.

This is a genus of small, robust, rounded *Chrysomelidæ*, with antennæ having a distinct and serrated club. The largest species which I have seen only reaches $\frac{15}{100}$ inch in length. The general appearance of the species approaches near to the *Crytocephali* of old authors; but looking to the distinctly serrated club of the antennæ, the more or less projecting mandibles, and the elongation of the fore legs, I think the true place for it is not far from *Clythra*.

Sp. 1. *Pleomorpha Davisii*, W. W. S. (Pl. XV. fig. 1.)

Head rufous, with the eyes and a transverse line across the forehead adjoining the thorax black. Antennæ rufous, with the joints forming the club black. Thorax rufous, smooth and shining. Scutellum black. Elytra smooth, shining, punctato-striate, testaceous, with the apex broadly tipped with black, a broad margin along the base of the same colour, the suture margined with black and the punctures near the basal margin black also. Underside of abdomen black. Legs castaneous, with the tarsi dusky. Fore legs elongate.

Length $\frac{10}{100}$ inch.

In the Collection of the British Museum and that of J. O. Westwood, Esq.

Taken in the vicinity of Adelaide, South Australia, by W. Davis, after whom I have named the species.

(Fig. 4 *a*, antenna ; 4 *b*, scutellum.)

Sp. 2. *Pleomorpha ruficollis*, W. W. S. (*Cryptocephalus æneipennis ?* Dej.)

Head and eyes black, with a patch on the face, and the parts of the mouth rufous. Antennæ rufous, with the joints forming the club black. Thorax bright rufous, smooth and shining. Scutellum small, ovate, black. Elytra smooth, shining, punctato-striate, dark bronzy green. Underside of the abdomen black. Legs rufous, with the tarsi dusky.

Length $\frac{8}{100}$ inch.

In the Collection of J. O. Westwood, Esq.

Taken by Mr. Lewis in Van Diemen's Land.

This species varies with the face sometimes entirely black or entirely rufous.

This may be the *Cryptocephalus æneipennis* of Dej. as described in the "Voyage de l'Astrolabe," but the short description there given leaves me much in doubt of the identity of the species with the one above described.

Sp. 3. *Pleomorpha rufipes*, W. W. S.

Head dark bronzy brown, with the parts of the mouth rufous. Antennæ rufous, with the club black. Thorax smooth, shining, dark bronzy brown. Scutellum and elytra of the same colour, smooth, shining, the latter faintly punctato-striate. Underside of the body black. Legs bright rufous, with the tarsi dusky.

Length $\frac{8}{100}$ inch.

In the Collection of J. O. Westwood, Esq.

Taken in Van Diemen's Land by Mr. Lewis.

Sp. 4. *Pleomorpha concolor*, W. W. S.

Entirely of a dark blue green, excepting the underside of the first joint of the antennæ, which is rufous, and the eyes, which are bronzy brown. Head, with the mandibles considerably projecting, shining, minutely punctate. Thorax shining, smooth, minutely and faintly punctured. Elytra shining, punctato-striate; the punctures of the striæ, adjoining the external margin, deeper than those on the disk. Underside of abdomen clothed with short whitish adpressed hairs.

Length $\frac{12}{100}$ inch.

In the Collection of Capt. Parry.

From Australia.

Sp. 5. *Pleomorpha atra*, W. W. S.

Entirely black, excepting the underside of the two first joints of the antennæ, which is rufous, and the joints forming the club of the antennæ and tarsi, which are pitchy brown. Head, with the mandibles considerably projecting, minutely punctate. Thorax shining, smooth, minutely and faintly punctured. Elytra shining, punctato-striate.

Length $\frac{15}{100}$ inch.

In the Collection of the Rev. F. W. Hope.

From Western Australia.

A nearly allied species to the foregoing, but differs in the size and colour.

P.S.—Some of the species of this genus are taken on the leaves of several species of Acacia, in South Australia.

XLIV. *On the Sectional Characters of the Genus* Lucanus, *with Descriptions of some new Species of* Lucanidæ. *By* J. O. Westwood, F.L.S., &c.

[Read 5th February, 1844, and 3rd March, 1845.]

In reviewing the distributions which have been proposed by Entomologists, for the more natural or more convenient arrangement of extensive groups of insects, we repeatedly find certain characters employed which, looking at higher results in connexion with the economy and existence of the creatures before us, it requires but very little acquaintance with the insect world to perceive can by no possibility have the slightest influence; in other words, that they are entirely unimportant as connected with insect life and which we thence term artificial characters.

The employment of such characters is, it is true, absolutely requisite for furthering the ends of science, although this is much to be regretted, because, as must have happened in the experience of every Entomologist, we are constantly exposed to the ridicule of others, ignorant of the science and of the nature of those artificial characters, when they find us occupied in counting the joints in the antenna of a beetle or carefully tracing the intricacies of the veining of the wings of a fly. What, ask they, can be the possible use of wasting your time and talents on such frivolous pursuits as these? What can possibly be gained by knowing whether this beetle has five joints in its hind tarsus or only four? What possibly can be learned by finding out that there are three or only two short transverse veins between the subcostal and radial veins of the wing of a sand wasp?

Now nothing, in the whole course of an examination of extensive tribes of insects, is more remarkable than the pertinacity (if we may be so bold as to employ such a term) with which these trivial characters are maintained throughout such groups. It may, indeed, appear a trivial question, whether a beetle possesses more than eleven joints in its antennæ, but when we know that at least ninety-nine out of every hundred species of beetles possess exactly eleven joints in the antennæ, we at once arrive at the conclusion that a departure from this typical number as it is termed must be attended with some circumstances not without interest if we could but determine them. So again it may at first sight seem very immaterial whether this species of sand wasp possesses three or only two transverse veins forming the submarginal cells, but when it is known that the character of the species is as distinctly impressed, not only on the precise number but absolutely on the precise points of insertion of these veins as it is on the highest points of its economy or outward structure, we equally at once arrive at the same conclusion that a knowledge of this character, artificial as it may be, is from the mere simplicity of its employment, a character as valuable as though it were derived from its most important organs. There is, in fact, so singular an uniformity maintained in these comparatively unimportant characters, that the examination of them becomes as strong an evidence of the marvellous power of the Creator as the most elaborately constructed portion of their frames; in fact, we oftener find deviations from the typical structure of higher parts than from these trivial ones. To find a *Carabus* with only four joints in its tarsus would in fact be as great an anomaly and a much greater rarity than to find one with monstrously furcate antennæ. It is on these grounds that the employment of these comparatively trivial characters is justifiable and indeed absolutely necessary, and it is especially on this account that the employment of the characters to be derived from the veining of the wings in *Hymenoptera, Diptera, Lepidoptera, &c.*, has been so much and so long insisted upon.

These remarks have been suggested by a recent examination of an extensive group of beetles with the view of determining their species. To do this effectually it was requisite to examine the whole group with much attention so as to determine the relative value of the various sectional characters which the different species exhibited, or, in other words, to learn whether by grouping the species from the possession or want of certain structural peculiarities we should not run the risk of separating more widely apart than was evidently warranted by nature, species which possessed an evident affinity between themselves resulting from their possessing other characters in common.

The group in question was the genus *Lucanus*, possessing nearly 150 species in the whole; and from an examination of at least 120 species I was led to the conclusion that the number of small spines upon the outer edge of the middle and posterior tibiæ constituted the most available artificial character for grouping those species together which evidently possessed the greatest natural relationship with each other. The employment of this character had been partially adopted by the Rev. F. W. Hope, in his isolated descriptions of some of the species, published in the Linnæan Transactions and elsewhere, but it had not hitherto been applied to the whole genus, nor had it ever been conjectured that in some species the differences exhibited by these spines afforded sexual characteristics, although the extensive employment of the character amongst the *Cetoniidæ* and Goliath beetles had shown it to possess both sectional and sexual distinctions.

The number of joints in the club of the antennæ at first suggested itself, and indeed it had been already proposed by MacLeay, as a primary sectional character; but this, in addition to the difficulty in its employment, owing to the greater or less development of the joint preceding the clava, was shown to be inefficient, by separating species which agreed together in their entire habitus. Its employment also was found to be opposed by the number of these tibial spines, which brought together in the most natural manner the great majority of the species.

By the employment of this character the genus *Lucanus* is divisible into three great groups: first, those with two or three spines on the outside of the posterior and intermediate tibiæ, amongst which are most of the largest species in the family, including our well-known stag beetle, which may in fact be considered as the type of the family; second, those with only one spine in the middle of the four posterior tibiæ in both sexes, in which section are brought together the gigantic species of *Dorcus* from the East, the small typical *Dorci* of moderate climes, and the group which Mr. MacLeay has called *Ægus*, but of which no Entomologist has ever been able to lay down characters sufficient to separate it from various other sections of *Lucanidæ;* third, an extensive group of species, being nearly the half of the whole genus, which either possess no spines to the four posterior tibiæ, or have one small one developed in the middle of these tibiæ in the females alone; of the species which belong to the first of these two subsections with simple tibiæ, *Lucanus metallifer* of Boisduval, *L. Burmeisteri*, Hope, Ent. Trans.; *L. bicolor*, F.; *Delessertii*, Guérin; *Saundersii*, Hope (*bicolor*, Saunders); *Baladeva*, Hope; *glabratus*, De Haan, &c., may be mentioned; whilst of those which have the tibiæ of the males simple and those of the females 1-spined, may be cited *L. Downesii*, Hope, Z. Tr.; *L. cinnamomeus*, Guérin; *L. dorsalis*, Erichs., which is probably the female of *L. cavifrons*, Burm. MS., and a considerable number of new species from the East and Africa contained in Mr. Hope's Collection.

Sp. 1. *Lucanus fawnicolor*, Hope. (Pl. XX. fig. 1.)

L. mandibulis magnis porrectis, dente valido ante alteroque

pone medium apicibusque serratis, totus supra luteo-fusco-pulverosus, antennis longis, tibiisque inermibus ♂.
Long. corp., cum mandib. ♂, unc. 1⅓.
Habitat in Oriente. Insula Java?
In Mus. D. Buquet, Parisiis.
An varietas *L. metallici*, Boisduv.?

Caput magnum subquadratum, disco fere plano, margine antico deflexo, et in nasum conicum parum elevatum porrectum, angulis anticis lateralibus ante oculos oblique truncatis. Oculi rotundati, cantho antice vix incisi. Mandibulæ capite longiores, dente valido interno ante, alteroque (oblique truncato) pone medium, apicibus intus serratis. Antennæ longæ, articulo 1mo curvato, 7mo intus attenuatim producto et setoso. Pronotum capite angustius, lateribus in medio angulato-deflexis. Elytra pronoto haud latiora. Totum corpus supra nigrum, virescente tinctum at omnino squamis luteis vel faunicoloribus tectum, margine externo elytrorum obscure nigricanti. Pedes longi, graciles, tibiis simplicibus, anticis spina rudimentali in medio externe instructis. Tarsi articulis basalibus subtus fulvo-setosis. Prosternum simplex.

Sp. 2. *Lucanus Rafflesii*, Hope. (Pl. XX. fig. 2.)

L. castaneo-rufus, nitidus; mandibulis, scutello, et sutura elytrorum nigris; capite et pronoto lateribus punctatis.
Long. corp. ♀, unc. 1.
Habitat in Insula Java?
In Mus. Dom. Guérin, Parisiis.

Caput pronoto duplo minus, punctatum, angulis lateralibus anticis oblique truncatis. Mandibulæ breves, nigræ, nitidæ, costatæ. Pronotum lateribus rotundatis et punctatis, elytrorum fere latitudine æquans, disco lævi nitido. Elytra nitida subdepressa, sutura et scutello nigricantibus. Totum corpus supra castaneo-rufum. Pedes concolores, tibiæ anticæ 6-dentatæ, 4 posticæ in medio externe 1-dentatæ. Oculi cantho subdivisi.

Sp. 3. *Lucanus sericeus*, Hope. (Pl. XX. fig. 3.)

L. niger, lateribus late piceo-castaneis, luteo-sericeis, mandibulis brevibus, tibiis anticis extus serratis et 3-dentatis, pronoto in medio angulato.
Long. corp. unc. ⅚.
Habitat in Insula Java.
In Mus. Dom. Guérin, Parisiis.

Caput mediocre, angulis anticis lateralibus oblique sub-truncatis. Mandibulæ breves, nigræ. Caput nigrum, rude punctatum, lateribus piceo-castaneis. Oculi cantho parum incisi. Antennæ articulo 7mo intus parum producto setaque armato. Pronotum capite latius, lateribus in medio angulato-productis, dorso nigro, punctato, lateribus piceo-castaneis, fulvo-pilosis. Elytra minutè punctatissima, pronoti latitudine, obscure piceo-castanea, tenue fulvo-pilosa, sutura obscura. Tibiæ anticæ extus serrulatæ, dentibusque tribus validioribus apicem versus armatæ. Tibiæ 4 posticæ in medio extus dente unico armatæ.

Sp. 4. *Lucanus reticulatus*, Buquet, MS. (Pl. XX. fig. 4.)

L. mandibulis brevibus crassis, intus obtuse dentatis, subdepressus, niger, pronoto subquadrato elytrisque squamoso-reticulatis.

Long. corp. lin. 6.

Habitat in Nova Zealandia.

In Mus. D. Buquet, Parisiis.

Caput parvum, nigrum, nitidum, margine antico depresso. Mandibulæ breves, obtusæ, dentibusque duobus obtusis armatis. Antennæ articulo 7mo vix intus producto setoso. Oculi cantho subdivisi. Mentum transversum, angulis anticis rotundatis, margine antico in medio parum emarginato. Pronotum subquadratum, capite multo latius, lateribus parum rotundatis, disco spatiis nonnullis luteo-squamosis. Elytra pronoti latitudine obscure luteo-squamosa, spatiis vel interstitiis glabris reticulata. Pedes breves, nigri. Tibiæ anticæ extus 5-6-dentatæ, 4 posticæ in medio dente unico armatæ.

Sp. 5. *Lucanus* (*Dorcus*) *capitatus*, Westw.* (Pl. XX. fig. 5.)

Niger, tenuissime punctatus, capite et pronoto latissimis, mandibulis capite longioribus, apice falcatis, intus ante medium dente valido suberecto obtuso instructis, pedibus et elytris piceis, his 6-striatis.

Long. corp. (mandibulis exclusis) lin. 16 ; lat. capitis lin. 7½.

Habitat Malacca.

In Mus. D. Guérin, Parisiis.

Caput magnum, latissimum, disco fere plano, tenuissime punctatum ; utrinque, pone basin mandibularum, tuberculo conico elevato instructum. Mandibulæ capite longiores, sat tenues, apice curvatæ, intus ad basin profunde incisæ, denteque obtuso elevato ante medium armatæ. Antennæ parvæ, articulo 7mo ad basin intus angulato et setoso, 8vo et 9no magnis et intus valde productis, 10mo vel apicali fere rotundato compresso. Pronotum latissimum, disco fere plano, tenue punctato, margine antico utrinque emarginato, lineaque impressa curvata cum illo parallela, lateribus subparallelis extus angulis anticis truncatis. Elytra pronoto angustiora, postice sensim angustata, depressa, piceo-fusca, subopaca, singulo striis sex lævibus notato. Tibiæ anticæ extus 7-8-serratæ, 4 posticæ in medio externe dente unico armatæ.

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* *L. platycephalus*, Guérin, MSS., but not *L. platycephalus*, Hope, in Trans. Ent. Soc. vol. iv. p. 73.

Sp. 6. *Lucanus* (*Dorcus*) *æqualis*, Hope, MSS. (Pl. XX. fig. 6.)

Piceo-niger, capitis et pronoti lateribus magis piceis, lævis, oblongo-subparallelus, elytris striis 6 punctatis, capite lato, mandibulis capite parum longioribus falcatis, singula ad basin dente supero armata, oculis cantho divisis.

Long. corp., mandibulis exclusis, lin. 11¼; lat. pronoti fere lin. 5.

Habitat in Oriente.

In Mus. Dom. Guérin? Parisiis.

Sp. 7. *Lucanus* (*Dorcus*) *Malabaricus*, Hope, MSS. (Pl. XX. fig. 7.)

Niger, elytris opacis, punctatissimis, singulo 7-striato, striis alternatis profundioribus; capite angusto, lateribus angulatis, pronoto fere quadrato, mandibulis depressis, capite duplo brevioribus, subtriangularibus, intus dente armatis.

Long. corp., mandibulis exclusis, lin. 10; lat. pronoti lin. 4.

Habitat in Malabaria.

In Mus. Dom. Guérin? Parisiis.

Sp. 8. *Lucanus* (*Dorcus*) *distinctus*, Hope, MSS. (Pl. XX. fig. 8.)

Niger, nitidus, capite et pronoto elytrorum latitudine, mandibulis falcatis, basi supra dente acuto armatis, pedibus et elytris piceis, his 7-striatis, lateribusque punctatis.

Long. corp., mandibulis exclusis, lin. 12¼; lat. pronoti anticè lin. 5½.

Habitat in Oriente.

In Mus. Dom. Guérin? Parisiis.

Caput pronoti latitudine, supra fere planum, nitidum, nigrum, utrinque pone oculos dente parvo armatum. Mandibulæ capite parum longiores, falcatæ, acutæ, singulâ supra versus basin dente acuto elevato instructâ. Antennæ articulo 7mo intus acute producto, tribus ultimis clavam depressam formantibus. Pronotum elytrorum latitudine, postice parum angustatum, disco fere lævissimo, marginibus attamen cum linea media longitudinali sub-punctatis. Elytra picea, subdepressa, lateribus fere parallelis, singulo 7-striatis, striis 1ma et 2da internis fere ad apicem extensis, 3tia cum 4ta, et 5ta cum 6ma, ad apicem connexis, marginibus lateralibus punctatis. Tibiæ anticæ extus 7-denticulatæ, 4 posticæ in medio externe dente unico armatæ.

Sp. 9. *Platycerus Oregonensis*, Westw. (Pl. XX. fig. 9.)
(An. *Pl. securidens*, Say.)

Pl. chalybæus elytris violascentibus, mandibulis capite parum longioribus, versus basin curvatis, dente supero alteroque interno versus apicem armatis, pronoti lateribus marginatis.

Long. corp. lin. 6.

Habitat ad littora septentrionali-occidentalia Americæ borealis (Oregon.)

In Mus. D. Guérin, Parisiis.

Caput transversum, quadratum, nigrum, nitidum. Mandibulæ capite parum longiores basi curvatæ, intus setosæ, dente parvo supero alteroque interno fere ad apicem instructæ, apice extremo acuto et obliquo. Antennæ articulo 7mo intus parum angulato-producto. Pronotum chalybæum, capite parum latius, pone medium paullo dilatatum, disco punctato, et in medio lineâ tenui longitudinali notato, marginibusque lateralibus marginatis. Elytra oblonga, pronoto haud latiora, violacea, nitida, punctata, punctis nonnullis lineas irregulares formantibus, angulis humeralibus prominentibus. Pedes breves, nigri. Tibiæ anticæ extus serratæ, dentibusque 6 majoribus et acutis armatæ.

XLV. *Descriptions of two new Genera of Carabideous Insects.* *By* J. O. Westwood, F.L.S.

[Read 2nd June, 1845.]

Platynodes, *Westw.* (Pl. XXI. fig. A. and details.)

Genus novum *Morioni* proximum, e quo differt præcipue formâ latâ depressâ, thorace cordato-truncato, &c.

Caput magnum, subquadratum, planum; angulis posticis pone oculos rotundatis et semiglobosis, e vertice linea valde impressa utrinque separatis, lineisque duabus impressis verticalibus, (fig. *A a*). *Labrum* porrectum, subquadratum; angulis anticis rotundatis margineque antico valde emarginato et ciliato. *Mandibulæ* magnæ, porrectæ, apice acutæ, intus obtuse et late dentatæ. *Maxillæ* valde curvatæ, lobo interno in spinam acutissimam terminato. *Palpi* externi breves, articulo 2do longiori, apicalibus fere filiformibus, (fig. *A b*). *Mentum* latum, lobis duobus magnis rotundatis planis, medio valde emarginato, dente bifido in medio emarginaturæ, (fig. *A c**). *Labium* parvum, corneum, angustum, apice rotundatum, supra carinatum, (fig. *A c*†). *Palpi labiales* parvi, (fig. *A c*‡). *Antennæ* satis breves, articulis apicalibus compressis velutinis, spatio tenui longitudinali nitido in singulo tantum relicto, (fig. *A d*). *Prothorax* magnus, planus, capite latior, valde cordato-truncatus, marginatus; angulis anticis rectis, posticis acutis, linea tenui longitudinali media, et excavatione oblonga versus angulos posticos impressa. *Elytra* prothorace latiora deplanata, anguste marginata, pone medium paullo dilatata, lineis tenuissimis et simplicibus striata. *Pedes* robusti. *Tibiæ* anticæ apice latæ, intus valde emarginatæ *Tarsi* antici haud dilatati, articulo singulo subtus lineis duabus postice convergentibus setarum rigidarum instructo; tibiæ intermediæ extus spinulis minutis armatæ, posticæ duæ inermes. *Corpus* subtus planum, prosterno postice porrecto, dilatato et transverse truncato. *Abdomen* segmentis 4, singulo ad marginem posticum punctis duobus impressis.

This fine genus has somewhat the appearance of a flat *Scarites*, but its nearest affinity is the genus *Morio*.

Species unica. *Platynodes Westermanni*, Westw.

(Plate XXI. fig. A. magn. naturali.)

Niger, subnitidus, capite magis nitido, antennarum articulis apicalibus brunneis, superficie corporis lævi; singulo elytrorum striis 7 simplicibus et gracillimis instructo, spatio inter strias 6 et 7, ad latera, in carinam elevato spatioque intus marginem lateralem punctis parvis rotundatis impresso.

Long. corp. lin. 13½, lat. elytr. pone medium lin. 4⅓.

Habitat in Guinea.

In Mus. nostr. D. Westermanno amicissime communicatus.

HELLUODES, *Westw.* (Plate XXI. fig. B. and details.)

Caput maximum, (prothorace multo majus,) porrectum, pone oculos in collum contractum; vertice inæquali, lævi, haud punctato, (fig. *B a*, caput subtus visum). *Labrum* porrectum, latius quam longum, antice in medio parum emarginatum, angulis posticis rotundatis. *Mandibulæ* porrectæ acutæ, margine interno inermi, apice parum acuminatæ, (fig. *B a**). *Maxillæ* elongatæ, graciles, apice subunguiculatæ. *Palpi* interni valde curvati, 2-articulati. *Palpi* externi maxillis vix duplo longiores; articulis 2 et 3 subæqualibus, hoc extus parum curvato; 4to dimidio breviori, intus inflexo, apice crassiori, (fig. *B c*). *Mentum* latum, in medio valde emarginatum, dente medio fere obliterato, (fig. *B a* †). *Labium* angustum, gracile, apice rotundato, (fig. *B a* ‡). *Palpi* labiales articulo 2do sequenti crassiori et longiori, intus setoso. *Antennæ* graciles, haud compressæ, longitudine mediocri, articulo 2do plus dimidio longitudinis 3tii, 4to 5to breviori. *Prothorax* truncato-cordatus, fere latitudine capitis (pone oculos) æqualis, marginatus. *Elytra* depressa, ad partem mediam latiora, punctatissima. *Pedes* mediocres, tibiis anticis ante apicem emarginatis; tarsis in specimine unico simplicibus, articulo 4to parvo, calcaribus brevibus.

This genus approaches nearest to *Helluo* in its general characters, although in its habit it resembles *Morio*, but in the particular structure of the parts of the mouth it is certainly not far removed from *Anthia*. Its locality, Ceylon, combined with its large head, &c., renders it an interesting link in the tribe of beetles to which it belongs. Unfortunately the extremity of the elytra are injured, so that I cannot determine the extent to which they may have been truncated.

Helluodes Taprobanæ, Westw.
(Plate XXI. fig. B.)

Niger, nitidus; labro, femoribus apiceque abdominis piceo-rufis.

Long. corp. lin. 15.
Habitat in Insula Taprobana.
In Mus. D. Melly.

Caput supra irregulare, haud punctatum, collo pone oculos valde declivi, inter oculos tuberculis duobus parvis rotundatis elevatis instructum. Pronotum tenue punctatum, marginibus lateralibus elevatis, et utrinque, versus angulos posticos, impressione profunda intus extensa et fere conjuncta notatum. Elytra punctis minutis irregularibus obsita, depressa, singulo striis 7 simplicibus parum impressis, interdum punctis notatis, punctis autem irregulariter dispositis, singulo etiam versus scutellum striola simplici abbreviata.

XLVI. *Descriptions of various Coleopterous Insects from New Holland, collected chiefly by* Mr. FORTNUM, *at Adelaide. By the* Rev. F. W. HOPE, F.R.S., &c.

[Read 2d February, 1846.]

IN the second part of the fourth volume of the Entomological Transactions, published in 1845, I described several new species of Coleoptera, collected in Adelaide by Mr. Fortnum. That zealous individual has lately returned to England, and transferred to my hands his entire collection. Amongst the insects are many important additions, which will tend to illustrate the Entomological Fauna of that interesting country. Acquainted with the localities and habits of many of the species, he has kindly offered me the assistance of his note book. I intend therefore to present to the Society descriptions of a series of new species of the different groups, with Mr. Fortnum's notes appended thereto, and I am happy to say that I shall have several of the species now described to add to the riches of our Entomological Cabinet.

COLEOPTERA LAMELLICORNIA.

DYNASTIDÆ.

Sp. 1. *Corynophyllus Fortnumi*, Hope, ♀. (Pl. XIX. fig. 7.)

Vid. p. 112, Vol. 4, part 2, of our Transactions, where the male of the above species is described. The female has lately been brought to this country by Mr. Fortnum, and is now added, with a short description.

♀. Castanea nitida, clypeo punctulato, margine anteriori vix emarginato; thorace nigricanti, angulis anticis et posticis rotundatis; elytrisque rude punctato-striatis.

Long. lin. 8, lat. lin. 5.

Fig. 7 *a*, antenna; 7 *b*, mandible; 7 *c*, maxilla; 7 *d*, instrumenta labialia.

SEMANOPTERUS,* *Hope*. (Pl. XIX. fig. 8, and details.)

Novum genus. Type *S. Adelaidæ*, Hope.

Caput antice rotundatum, medio cornutum. *Mandibulæ* robustæ, obtusæ et hirsutæ, (fig. 8 *a*). *Maxillæ* apice 3 dentatæ, dentibus acutis, (fig. 8 *b*). *Palpi* maxillares 4 articulati, 1mo brevi minimo, 2do robustiori, 3tio obconico, ultimo elongato ovato. *Mentum* medio dilatatum, antice contractum et emarginatum, (fig. 8 *c*). *Corpus* fere oblongum subdepressum, elytris thorace vix latioribus. *Pedes* validi; tibiis externis 3 dentatis, dentibus acutis.

The above insect from Adelaide appears to be a form peculiar to New Holland. In habit it approaches *Cheiroplatys*, from which it may readily be distinguished by the elevated lines on the elytra, as well as in its general sculpture. It possesses the grooved thorax of *Cheiroplatys*, and seems to approach *Phileurus*. I suspect that both sexes have the thorax hornless. It is found under dead bark in Adelaide, and has not yet, I believe, been taken alive.

Sp. 1. *Semanopterus Adelaidæ*, Hope. (Pl. XIX. fig. 8.)

Niger, clypeo brevi cornu armato, sub lente vix punctato. Thorax glaber, convexus, in medio sulcatus, sulco sparsim punctulato. Elytra postice magnitudine parum increscentia, quibusdam lineis elevatis politis signata, interstitiis punctulatis, punctis triplice serie impressis; latera scabriuscula. Corpus infra piceum, pedibus ciliatis, podice rufescente, tenuissime punctato.

Long. lin. 10½, lat. lin. 6.

In Mus. Dom. Hope.

It was brought to England by Mr. Fortnum, and found dead under the bark of trees.

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* From *σημανω* and *πτερον*.

Sp. 2. *Semanopterus subæqualis.*

Niger, clypeo dente parvo armato; thorace in medio sulcato, sulco haud fortiter impresso, et punctato. Discus glaber, sub lente tenuissime punctatus. Elytra fere æqualia, ad apicem parum increscentia, lineis elevatis et punctis triplici serie ordinatis. Corpus infra atrum, pedibus piceis et ciliatis. Podex rufus, crebrissime punctulatus.

Long. lin. 10, lat. lin. 5.

Sp. 3. *Semanopterus depressus*, Hope.

Affinis præcedenti. Niger, pectore pilis ferrugineis obsito. Clypeus niger, dente parvo armato. Thorax in medio sulcatus, disco glabro et nitido, sub lente tenuissime punctulato. Elytra lineis quibusdam elevatis signata, punctisque in triplici serie ordinatis. Corpus infra piceum, femoribus rufescentibus, ano rubro, crebrissime punctulato.

Long. lin. 10, lat. lin. 5.

Habitat in Australia.

Its real locality is unknown to me, as I purchased it in a box from New Holland.

Sp. 4. *Onthophagus cereus*, Hope, ♂.

Niger, nitidus; antennis piceis, clypeo fere trigono, postice furcato, seu occipite laminâ latâ bicorni armato. Thorax disco canaliculatus, antice retusus, in medio bituberculatus. Elytra sub forti lente lineato-punctata. Corpus infra nigrum, pilis flaveolis obsitum. Tibiæ anticæ quadridentatæ.

Alter sexus minor, thorace quadrituberculato, tuberculis mediis majoribus, lateralibus minutis et rotundatis.

Long. corp. lin. 5.

The above species in its lustre resembles black sealing-wax, whence its trivial name.

Sp. 5. *Onthophagus Adelaidæ*, Hope.

Nigro-æneus, clypeo sub bidentato, postice furcato seu cornubus duobus acutis, lateraliter divergentibus, armato. Thorax atro-æneus et granulate rugosus. Elytra depressa, sub lente striato-punctata, antennis pedibusque piceis. Alter sexus differt clypeo inarmato.

Long. corp. lin. 4.

[Read 2d March, 1846.]

Fam. SERRICORNIA.

BUPRESTIDÆ.

Genus STIGMODERA.

Sp. 1. *St. Smaragdina*, Hope.

Viridis, antennis atris; thorace aurato-punctulato; elytris concoloribus, fortiter insculptis, marginibus externis cyaneis. Corpus subtus auratum, nitidum, segmentis abdominis lævibus, femoribus viridibus, tibiis cyaneis, tarsisque piceis infra ciliato-spongiosis.

Long. corp. lin. 9.

Habitat in Nova Hollandia.

In Mus. Dom. Hope.

Sp. 2. *St. Xanthopilosa*, Hope.

Affinis 10-*maculatæ*, at longior; elytris vix thorace latioribus; atro-violacea, thorace roseo-æneo et punctulato. Elytra flavo-marginata, striata, striis punctatis, maculis quatuor luteis; prima prope ad scutellum subrotundata, secunda fere oblonga, tertia parum transversa, ultima in apice minori. Corpus infra argentea lanugine obsitum; pedesque violacei.

Long. corp. lin. 7.

This beautiful species is from Adelaide.

Sp. 3. *St. Vegeta*, Hope.

Læte cyanea, antennis concoloribus, thorace punctulato. Elytra violacea, fasciis tribus flavis fere ad suturam terminata; prima irregulari ad basin posita e humeris ad latera extensa, secunda latiori fere media, tertiaque minori. Corpus infra læte cyaneum, pedibus concoloribus.

Long. corp. lin. 4½.

In Mus. Dom. Hope.

From Adelaide.

Sp. 4. *St. colorata*, Hope.

Affinis *flavo-pictæ*, Gory, at latior. Viridis, thorace cyaneo, elytris flavis, maculis duabus violaceis e humeris ad medium disci descendentibus, macula tertia media parva concolori fascia postica, maculaque quarta ante apicem positis, apicibusque flavis. Corpus infra viride, punctulatum, pedibus concoloribus.

Long. corp. lin. 4.

Habitat in Adelaida.

Sp. 5. *St. media*, Hope.

Sanguinea, thorace cyaneo, elytris flavis, marginibus externis sanguine inquinatis. Elytrorum discus maculis binis humeralibus cyaneis, tertia cruce lata concolori, apicibusque sanguineis. Corpus infra cyaneum et argenteo-tomentosum.

Long. corp. lin. 5½.

Inhabits Adelaide.

Sp. 6. *St. delectabilis*, Hope.

Viridis, thorace concolori, nitido et punctulato. Elytra striato-punctata, macula suturali majore viridi, altera minori utrinque posita, fascia lata aurato-viridi, maculaque irregulari concolori apice terminata. Corpus infra læte viride, punctulatum, pedibus violaceis.

Long. corp. lin. 6½.

Inhabits Port Philip.

LAMELLICORNIA.

Sp. 7. *Aphodius Adelaidæ*, Hope.

Niger, nitidus, clypeo subemarginato, antennis atris. Thorax glaber, elytris sub lente striato-punctatis. Corpus infra nigrum, femoribus tibiisque rubro-piceis.

Long. corp. lin. 2½.

The above insect, I believe, is the first described of *Aphodius* from New Holland; as there are some others in my collection I describe them.

Sp. 8. *Aphodius cincticulus*, Hope.

Affinis *Anachoretæ*, Fab. Caput nigrum, subemarginatum, antice flavescens, tuberculo unico armatum. Thorax ater, nitidus, margine omni pallescente. Scutellum flavum. Elytra striata, fusco-flava, margine flavescenti. Sutura nigra. Corpus, antennæ et pedes pallescentia.

Long. corp. lin. 2.

Habitat circa Adelaidam.

Sp. 9. *Aphodius sculptus*, Hope.

Niger, antennis flavo-piceis, clypeo emarginato; thorace varioloso-punctato, elytris lineis elevatis glabris insignitis interstitiis sculptilibus. Corpus infra atrum nitidum, pedibus concoloribus.

Long. corp. lin. 2½.

The above insect was received from Port Philip; its sculpture is very remarkable, whence it is named.

Sp. 10. *Aphodius Tasmaniæ*, Hope.

Fusco-brunneus, clypeo integro, vix reflexo; thorace nigricanti punctulato, margine omni pallescente. Elytra striato-punctata, fusco-brunnea. Corpus infra concolor, pedibus flavescentibus et ciliatis, posticis longissimis.

Long. corp. lin. 5.

Habitat in Tasmania.

In Mus. Dom. Hope.

The above insect is from Van Diemen's Land. In form it approaches *Promeces* of Illiger from Africa, and is also somewhat allied to *Elongatulus*, Fab., from China. The length of the elytra when compared with the thorax, as well as the long posterior tibiæ, seems to mark this form as peculiar to New Holland. Some specimens said to come from Sydney certainly seem closely allied.

Sp. 11. *Aphodius Howitti*, Hope.

Præcedenti affinis, at minori. Fusco-piceus, clypeo integro, vix reflexo. Thorax disco nigricanti punctulato, margine omni rubro-piceo. Elytra striato-punctata, atro-picea. Corpus infra flavescens, pedibus concoloribus et ciliatis.

Long. corp. lin. 4½.

The above insect was sent to me from Port Philip by Mr. Howitt, in whose honour it is named. It evidently pertains to the same section as *Aphodius Tasmaniæ*.

XLVII. *Remarks occasioned by the publication of a Work entitled "Insect Life."* *By* J. W. DOUGLAS, Esq.

[Read March 2, 1846.]

THE phenomena of insect life are so various and wonderful, and we are so ill able to account for many of them, that whatever professes to throw a new light thereon is worthy of some attention. I have therefore thought it right to bring under the notice of the Society the ideas contained in a book lately published by Dr. Badham,* and presented to this Society by the author; and I am the more induced to do this, that I have neither seen any notice of it in the reviews, nor heard any mention of it here, and it might appear that Entomologists tacitly acquiesced in the startling notions it contains. I wish this notice had fallen into abler hands, but it will I trust have the effect of exciting observation and discussion, that thereby the truth,—the great end of the naturalist's researches,—may be ultimately elicited. To avoid misrepresentation I shall give the author's own words, adding a few remarks as I proceed.

The book opens with some observations on the difficulty that exists, where the forms of animal and vegetable life converge, of pointing out the characters by which they may be referred to their respective kingdoms, showing that neither in structure, want or power of motion, food, modes of increase, chemical constitution, nor sensibility, is the distinction to be found. It is said, "the possibility of fixing any limit between the two kingdoms presupposes that the highest order of plants is lower than the lowest specimen of animal life; whereas to the careful observer, the scheme of nature does not present a graduated scale, on which every class is necessarily higher or lower than the next, there being many living productions which, while on several grounds they bear a strong analogy to the animal world, are yet in other respects (such as complexity of organization or variety of function) lower than ferns or lichens, or even than some of the pheneroganic classes. When indeed we arrive at less questionable examples, wherein may be traced the substance of one order and the machinery of another, the voluntary motion of this tribe and the irritable tissues of that, co-existent in all their completeness, every thing which is considered necessary to the constitution of an animal is so unequivocably present, that any one would be laughed at who should refuse to bestow that title on their possessor (an insect for instance), and yet by the familiar use of this word, animal, we are led to form conclusions unsupported by experience, and, starting with the belief that it implies a being that feels, we argue from the name to the fact, and from the fact back again to the name."

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* "Insect Life," by David Badham, M.D., late Radcliffe Travelling Fellow of the University of Oxford; F.R.C.S. London; M. Ent. Soc. France. W. Blackwood and Sons, Edinburgh and London, 1845.

Next is the assertion, " that insects do not feel." " The power to feel appertains only to those creatures in whom the life of growth has reached its consummation. It is admitted on all hands that higher degrees of intelligence are associated with higher degrees of anatomical structure, especially of the nervous system, and it is equally certain that the sensibility of creatures is in proportion to their intelligence : hence we should expect sensation to be more or less perfect according as the nervous system is more or less developed, and its amount to be immediately connected with all those physical conditions upon which intelligence has also been ascertained to depend, viz. the temperature and colour of the blood, the absence or presence of a spine, and the form and substance of the brain. Accordingly, it ought to follow that the sensibility of creatures of cold blood, such as fish, amphibiæ and reptiles, where few or no traces of intelligence can be discovered, should be proportionably low ; and in point of fact the signs of it are very faint and few. Surely, therefore, when we descend lower still, and come to creatures of the same kind as Anacreon's *Cicada*, —creatures altogether without blood(!)—and this deficiency is common to all the insect tribes,—it is reasonable to expect that the sensibility of which we had observed the progressive decline in passing from the higher to the lower qualities of the circulating fluid, should here be totally obliterated."

A comparison of the nervous system of the different orders of animals is then made, showing that in the brain and spinal cord of the vertebrata " all that qualifies the animal to feel is centralized, and from the same originating cord all that enables it to move proceeds to its destination." In the class of insects, on the contrary, there is no brain ; " a medullary cord runs through the whole body of the animal, giving branches to the different organs in its way. Placed at intervals upon this cord, something like beads, or lying between its two elementary threads, are seen roundish knobs, which have obtained the name of ganglia : they are various in size, uncertain in number, and are placed at unequal distances in different tribes of insects ; but in no case do they, as far as visible structure is concerned, present the least similarity to the brain." It is moreover stated, that there is a direct connexion between the temperature of animals in general and the amount of red globules in their blood, and that there is as marked a connexion between the amount of sensibility and of animal heat as there is between the latter and the amount of cruorine in the blood; from all which it is inferred, that as sensibility is in proportion to the size and quality of brain, and the amount of red globules in the blood, a creature which has no brain and "no red blood" (just now it was "altogether without blood") should be devoid of sensibility.

There are also, it is stated, several points in which the physiology of insects resembles that of plants rather than that of animals, viz. perpetuation and superfœtation of species, longevity if the functions of generation be delayed, evolution of heat under certain circumstances, the generation of spontaneous light, and the operation of poisons.

This, then, is an outline of the theory that insects are devoid of sensation. The proofs adduced are the following:—

Touch.

In the higher animals, "the particular senses are so far independent of the diffused sensibility of the organs which administer to them, that the sense, or *particular* office of the nerve, may be lost, while the sensibility of the external structure remains. In amaurosis, or extinction of the visual power, the general sensibility of the retina is retained; the ear which has lost its hearing may ache; both taste and smell have been nearly abolished, without in the least impairing the common sensibility of the mucous membrane of the mouth and nose. But the reverse will by no means be found to follow: we have no experience of the ear, the eye, the palate or the nostril carrying on their peculiar functions after the general sensibility of the tissues has been extinguished. In touch we have positive experience to the contrary; a skin on which stimuli would fail to act,—a skin which could neither smart, ache, nor be tickled, ceases to be the organ of touch, as we see it exemplified in the effects of intense cold, which, by depriving the surface of that blood which supports and vivifies its subtle organization, numbs its general sensibility, and at the same time paralyses the particular sense, while an increasing warmth communicates to the over-sensible skin an increased nicety in the fulfilment of its office. If, then, an highly organized tissue can, through the withdrawal of some of the conditions of its healthy state, become utterly unserviceable as a means of distinguishing the surfaces of bodies, what shall we say of integuments, which not only do not wince under the poisoned barbs of thistles and stinging nettles, but which in many instances carry within them and are full of liquids so caustic, that we employ them for the vesication of our own skins? and though the induction is but partial, the objection will apply universally; for who would dream of granting to one insect what he denied to another?

"It is the more important to attend to this, because many esteemed writers on Entomology,—though forced by the conduct of an insect when injured, to admit that he shows small evidence of general sensibility,—have yet, when their subject brings them to speak of touch in the abstract, made it the great instrument by which the wonders of insect architecture are accomplished. Thus, although unable from what they see to impute much general sensibility to the spider, they yet assert that the delicacy of his touch is displayed beyond the possibility of doubt; and that the fact of his working his nets with his hind legs, and in the dark, indicates that this sense, being the only one which he can turn to account, possesses an additional portion of accuracy in compensation for the help which it would otherwise have derived from the sense of sight. Now this is certainly an inconsistency; but the after assumption which is resorted to for a particular end does not invalidate the previous admission. Whoever contents himself with simply recording what he sees, and does not go out of his way to suppose a power of which there is no evidence, (!!) in order to explain, and that very inadequately, the marvellous works of bees and spiders, will admit, that as insects give very equivocal signs of any diffused sensibility, their possession of the sense of touch must be proportionably obscure; while the exquisite degree of it which has been pretended, must be seen to be utterly unfounded. And yet this is the favourite sense with Entomologists, and the one to which they refer almost all the operations of insects;—by touch alone, by the mere crossing of the antennæ, ants are said to deliver themselves of matters arising in the conduct of their affairs, to record which whole sentences are required; while the *tactus eruditissimus* of bees discerns the presence and applauds the mandates of their queen. To what purpose is all this waste of suppositions? The geometrical figure of the web or the cell, the activity of the makers of them, sustained until the completion of their task,—all in the wonder that is most wonderful, remains as unexplained as ever!"

But if the sense of touch has no share in producing the marvellous works of bees and spiders alluded to, by what means are they accomplished? Our author is silent.

SIGHT.

"He that would assert the title of insects generally to the possession of this sense, is already in possession of two important arguments to start with. An organ can be pointed out in which to lodge the supposed faculty; and as that faculty is, from analogy, the most useful of all the senses, it would seem an anomaly that an intelligent creature (the intelligence, however, being entirely assumed, and for the present unchallenged,) should have been created without it. The greater number of insects, then, must be admitted to have what most physiologists would call eyes; but whether they are properly so called, can only be fully determined by the function they exercise, in inquiring into the exercise of which it may perhaps be not very difficult to show, that they differ entirely from organs of sight as we possess them and understand them." The structure of the eyes of insects is then noticed; and Marcel de Serres and Cuvier are quoted to show that their "composition exhibits externally a cornea of various degrees of convexity, cut into facettes or corneules, whereof each is supposed to represent an eye. All these corneules are lined on their inner surface with an *opaque varnish, and this varnish affords no passage for the transmission of light.* Secondly, a number of short hexagonal prisms, entering the concavity of the lenses, come into contact with this varnish, and these it is usual to consider as so many retinæ, each having that relation to the particular lens with which it communicates. Next in order comes the choroid, which is penetrated by the prisms just mentioned. and which are given off from beneath it by the general expansion of the optic nerve, properly called the retina." . . . . . . "The insect being absolutely and unavoidably subject to the same external conditions for vision as ourselves, cannot be supposed to see through a *black pigment*, any more than we can through a *white cataract;* and as all insects equally have this black pigment, *all* must be equally blind."

I was not prepared for this, nor, I should think, are any of my hearers. The presence of an optic nerve is not denied; and of what use is an *optic* nerve if not for sight? Mr. Newport has proved,* as I thought, that a bee flies straight to its hive by the sense of sight alone; but it is said "if insects want a brain of what use are eyes?" How then do they fly straight to their homes? Or to take an instance familiar to every one—how does a dragon-fly hawk for his prey and dart unerringly upon it if he be blind? There is no answer, unless this is an answer, "that it would be wiser to leave their conduct unexplained than to resort to an explanation which is no explanation at all, or which proves too much; for many of the actions of bees and spiders, if they imply sight, imply also an intelligent and spontaneous use of it." Do their actions, then, imply less intelligence if their authors be blind?

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* Trans. Ent. Soc. of London, Vol. IV. p. 57.

SMELL.

"The general objection still obtains here—the absence of a brain to receive the message of the sense and to determine the consequent act." The attraction of insects to certain plants and substances is then noticed; and it is added, "but if we hesitate to admit or deny the sense of smell to insects, in what other way can we explain, or how indeed can we explain at all, such facts. Indeed we know not! but this we certainly know, that there are many acts performed by insects which cannot be explained at all by the operation of any of the senses, nor by all of them together; acts which we are fain to refer, accordingly, to the mysterious power called instinct." So that because we cannot account for some of the acts performed by insects, we are to give up each one of them as inexplicable. It would be about as wise to give up the Newtonian theory of the universe, because we cannot thereby fully account for the falling stars. Can any one doubt that the flesh-fly visits carrion and that moths are attracted to sugar by the sense of smell?

TASTE.

"'Without taste,' says an eminent modern writer, 'no animal could continue its existence; it is a sense indispensable to all organized beings, though its peculiarities cannot always be traced to the structure or form of the organs.' This statement, however, is an assuming of the question, nor is it possible to acquiesce in it. Do not the absorbents select without tasting, and are not some animals little better than absorbents? That some insects show a marked preference for this or the other kind of nourishment is, if true, anything but conclusive as to their taste; for one is at a loss to conceive how, if insects were led by flavour to the choice of food, so many should be found to feed on insipid substances." Now I do not see that this disproves the power of tasting, for these substances, though insipid to us, may be palatable and relishing to insects. Few that have seen the *penchant* of certain insects for substances to us disgusting or insipid, and the avidity with which they devour them, can doubt this. Do we not say they have a "taste" for such things, and by what other words can we express the idea?

HEARING.

Many have been the theories as to the seat of this sense in insects, and it is a matter not yet satisfactorily determined; nevertheless there are so many facts in insect economy that imply the possession of it, that it has not hitherto been possible to deny its existence in some insects at any rate. Why have they the power of making a noise if not to be heard by others of their species? And that such is the case is proved by the answers returned to them. Yet this sense, like the others, our author denies they possess, and curiously recites the following in corroboration. "The melancholy click of the death-watch (Anobium) loses all its terrors when it is found that the ominous sound is not a voice, but the result of mechanical friction. You have only to send him a counter-scratch from your side of the wainscot, when, mistaking you for a brother Anobium, he returns the signal." Why, is not this admitting that he *heard* the noise?

Under this head (though I do not see any connexion therewith) follows a number of instances of the wonderful proceedings of insects, "none of which," says Dr. Badham, "can proceed from sensuous impressions, if what has now been written against the probability of insects possessing the senses be correct." It is added, "from the above examples, which it would be foreign to my purpose and useless to multiply, it appears that the intelligence which prompts the actions of the dog, or of the higher animals generally, has no share in bringing about any of those of which insects are the agents. First, because, as we have seen, anterior to all experience or apprenticeship, they execute faultlessly whatever they have to do. Secondly, because on the supposition of the conduct of an insect proceeding from intelligence at all, we should be obliged to admit that he shows in one part of his conduct a greater and in another a less amount of it than could possibly proceed from one and the same individual; and lastly, because many of the daily actions of insects cannot be explained by referring them merely to intelligence, but suppose prescience as well, which, as it is not an attribute of brutes, can much less be supposed to belong to creatures so vastly below them as insects."

To what conclusion then are we to come? It is, that all the phenomena of insect life are referable to instinct, which is held to be synonymous with vitality,—" instinctive and vital acts being but different manifestations of life, executed in accordance with the pre-established harmony between the creature and the external world."

I do not now propose to examine the physiological doctrines propounded in this book; I only contend that the facts of insect life do not bear out the theory. For in insects we see organs analogous to the organs of the senses of the higher animals, and perceive actions performed, which, if proceeding from the higher animals, we should at once acknowledge as conclusive proof of sensation; and I do not think that we are warranted in assuming that such creatures as insects are destitute of sensation, because we cannot trace a complete identity with the higher animals in the structure and functions of their organs or their nervous system; nor in disputing the possession of a faculty (such as hearing) when we see its manifestation, because we do not know the organ by which it accomplished its purpose.

XLVIII. *On two new Sub-Genera of Australasian* Chrysomelidæ, *allied to* Cryptocephalus. *By* W. W. SAUNDERS, Esq. F.L.S.—(*continued from* p. 270.)

[Read 5th April, 1847.]

CHLOROPLISMA, W. W. S. Χλωρος, *οπλισμα.*

Head vertical, immersed in the thorax up to the eyes, with the parts of the mouth but little projecting. *Eyes* reniform, with a deep sinus, in front of which the antennæ are inserted. *Antennæ* (Pl. XV. fig. 6*a*) nearly filiform, about as long as the body, 11-jointed; first joint robust, pyriform, second orbicular, third, fourth and fifth slender, the fourth the shortest and about half the length of the fifth, the remaining joints somewhat more robust and shorter than the fifth joint, gradually decreasing in length towards the apex, terminal joint ovate pointed. *Thorax* trapeziform, convex on the upper surface, with the posterior angles slightly rounded. *Scutellum* moderate, subquadrate, narrowed and elevated posteriorly. *Elytra* somewhat broader than the thorax, elongate, being in length once and a half the breadth, slightly rounded at the apex and well covering the abdomen. *Legs* somewhat long and slender. *Tarsi* 4-jointed, third joint broad and deeply bifid.

This subgenus approaches to *Idiocephala*, W. W. S., differing chiefly in the relative proportions of the second, third and fourth joints of the antennæ, and in the more elongate and less cylindrical shape of the insect.

Chloroplisma viridis, Hope MSS. (Pl. XV. fig. 6.)

Entirely of a rich bright metallic shining green, excepting the underside of the first joint, the whole of the second, third and fourth, and the underside of the fifth joints of the antennæ, where the colour is rufous, and the apices of the tibiæ and the tarsi, which are dark piceous. The whole of the upper surface, except the scutellum, is deeply and widely punctured, conjoined with slightly elevated rugosities, giving it a rough and uneven appearance. Scutellum smooth and very polished. Abdomen covered with adpressed whitish hairs.

Length $\frac{15}{100}$ of an inch.

From New South Wales.

This insect I have only met with in the rich collection of the Rev. F. W. Hope.

LACHNABOTHRA, W. W. S. Λαχνη, βοθρος.

Head vertical, immersed in the thorax up to the eyes, with the parts of the mouth little prominent. *Eyes* elliptical, with a sinus on the anterior margin. *Antennæ* (Pl. XV. fig. 5 *a*) about half the length of the body, nearly filiform, placed wide apart near the sinus of the eyes, 11-jointed; first joint robust, pyriform, second orbicular, third to seventh nearly of equal length, fifth the longest, all more slender and longer than the four terminal joints; apical joint ovate pointed. *Thorax* trapeziform, nearly twice as broad as long, very convex above, somewhat produced on the hinder margin, and the upper surface covered with small irregular hollows or pits, clothed with downy pubescence. *Scutellum* large, subquadrate, somewhat narrowed and much elevated behind (Pl. XV. fig. 5 *b*). *Elytra* rather broader than thorax, somewhat longer than broad, rounded at the apex. *Abdomen* (fig. 5 *d*) large, the fifth joint having a deep rounded excavation in the centre near the anus on the underside. *Legs* short, robust. *Tarsi* 4-jointed; third joint broad and deeply bifid (fig. 5*c*).

The short, robust, broadly ovate shape, joined with the remarkably elevated scutellum and singularly sculptured thorax, distinguish this subgenus from all its allies that I am acquainted with. It would appear in some respects to approach *Onchosoma*, a subgenus I have already described in the Entomological Society's Transactions, but it is evidently distinct and a very remarkable form.

Lachnabothra Hopei, W. W. S. (Pl. XV. fig. 5.)

Dull chesnut brown. Antennæ and parts of the mouth yellow brown. Eyes black. Head rugose, covered with irregularly laid adpressed yellow white hairs. Thorax with about eighteen excavations or pits on the upper surface, densely clothed with soft down-like whitish hairs, which radiate from the centres of the excavations, giving the whole a peculiar silky appearance. Scutellum with an elevated longitudinal ridge along the centre, clothed with adpressed whitish hairs, except at the apex. Elytra rugose, with elongate rounded elevations and deep impressions, sparingly covered with yellowish-white short hairs. Abdomen underneath punctured and sparingly clothed with yellowish-white adpressed hairs. Legs rufous brown, with the tarsi paler.

Length $\frac{23}{100}$ inch., breadth $\frac{15}{100}$ inch.

From New South Wales.

In the Cabinet of the Rev. F. W. Hope, after whom I have named the species.

XLIX. *Description of a new Genus of Lamellicorn Beetles from India, belonging to the Family* Rutelidæ. *By* J. O. Westwood, F.L.S., &c.

[Read 3rd August, 1846.]

Family RUTELIDÆ.

Genus Peperonota, *Westw.* (Pl. XXII. fig. 1, and details, of the male; fig. 2, and details, of the female.)

Corpus breve, crassum, valde convexum; pedibus brevissimis. *Caput* mediocre, subtriangulare, vertice bituberculato, clypeoque tuberculato, tuberculo unico in ♂, duobus in ♀, (fig. 1 *b*, caput ♂; 2 *a*, ♀, supra visum). *Labrum* porrectum, breve, transversum, corneum, anticè in medio subemarginatum, (fig. 1 *b*, ♂, 2 *b*, ♀). *Mandibulæ* breves, latæ, corneæ, angulo externo antico in tuberculo obtuso producto (ore clauso, clypeo et labro haud obtecto); angulo interno quadrato, spatio subtus tenue setigero; portione molari lata tenuissime transverse strigosa, (fig. 1 *c*, 1 *d*, 1 *e*, mandibulæ maris, supra, externe et interne visæ). *Maxillæ* corneæ, lobo externo producto, 6-dentato; dentibus sic (ex apice) dispositis 1, 2, 3; palpi maxillares breves, 4-articulatæ, articulo 2ndo 3tio duplo longiori, ultimo majori subovali, (fig. 1 *f* and 2 *c*). *Mentum* crateriforme, valde setosum, apice paullo dilatato, margine antico in medio emarginato; palpi labiales breves, 3-articulati, articulo intermedio minori, (fig. 1 *g*, 2 *d*). *Antennæ* breves, 10-articulatæ, sexu conformes, clava 3-phylla parva, (fig. 1 *b*, 2 *a*). *Pronotum* fere semicirculare, valde gibbosum, nitidissimum, punctatum, medio marginis postici in mare, in cornu tenui supra scutellum et basin suturæ extenso productum, cujus apex deflexus in impressionem suturæ receptus (fig. 1 *a*, corpus ♂ e latere visum); canali tenui longitudinali per medium pronoti maris extenso; fœminæ simplex inerme; margine postico in medio rotundato, utrinque subsinuato. *Scutellum* latum, fere semicirculare. *Elytra* brevia, convexa; maris opaca nisi spatio nitido semicirculari depresso prope scutellum; fœminæ minus opaca, punctata, singulo versus apicem tuberculo elevato instructo; marginibus lateralibus integris, apicibus anum haud tegentibus. *Podex* deflexus. *Pro-* et *meso-sterna* omnino mutica

et simplicia, nec elevata nec porrecta. *Pedes* brevissimi, in maribus præsertim incrassati; tibiæ anticæ 3-dentatæ, dentibus duobus apicalibus approximatis; tibiæ intermediæ extus biangulatæ, singulo angulo in medio dentibus duobus instructo; tibiæ posticæ extus 1-angulatæ, dentibus duobus eodem modo positis. *Tarsi* brevissimi, 5-articulati, maris robustiores præsertim in pedibus anticis, articulo 5to majori curvato, apice subtus onychia distincta setigera armato; unguibus omnibus in utroque sexu æqualibus, uno bifido, altero simplici; unguibus pedum anticorum maris magnis difformibus, majori valde curvato et supra dente armato, minori simplici.

Fig. 1*h*, tibia et tarsus anticus; 1*i*, tibia et tarsus intermedius maris; 2*e*, apex tibiæ, cum tarso antico; 2*f*, tibia intermedia; 2*g*, tibia postica fœminæ.

In the first part of the fourth volume of the Transactions of the Entomological Society I described a genus of Lamellicorn beetles belonging to the family *Rutelidæ*, composed of species inhabiting Asia and its dependent islands, being the only insects of that family which had hitherto been discovered in that quarter of the world, the great majority of the species being almost exclusively natives of the New World. The genus *Parastasia*, in several of its characters, constitutes a very marked addition to the family, which, with *Chalcentis*, (formed of two Brazilian species,) and probably with the addition of the undescribed Australian group, named *Cælidia* in Dejean's Catalogue, has been formed by Dr. Burmeister into a separate subfamily, distinguished by the subsinuated labrum, the clypeus generally dentate at its anterior extremity, and the short broad scutellum.

The insects which constitute the genus of which the characters are laid down above, represent another and not less important link in the classification of this beautiful family. Like *Parastasia*, they are inhabitants of the East; and thus, in an Entomo-geographical point, are particularly interesting; but it is in their characters that we look for their chief peculiarities. And here we find that whilst they possess, with only one or two immaterial exceptions, the entire characters of the family *Rutelidæ*, as laid down by Mr. MacLeay in the "Horæ Entomologicæ," i. p. 69, they possess generic distinctions which will at once remove them from every known Rutelideous group.

It may, I think, be laid down as a rule, that where the males of any insect exhibit strikingly marked external sexual characters, it is the female which must be examined, with the view to the situation of the species in the system, for in this sex those characters which most strikingly individualize the species are not reproduced, and consequently the characters of the family are more clearly to be seen. Thus, whilst the male of the species before us possesses a character which not only at once individualizes it amongst the great mass of Lamellicorn beetles, but also distinguishes it from every known Coleopterous insect, (namely, the posterior production of the middle of the hinder part of the pronotum into a curved slender horn, extending backwards over the scutellum and base of the suture,) the female at first sight possesses so little of distinctive peculiarity that it might be mistaken for a dull-coloured *Chasmodia* or *Pelidnota.* It is worthy of further remark, that whilst so many of the *Rutelidæ* possess a strongly porrected mesosternal spine, this insect has the pro- and meso-sterna entirely simple, and not in the least degree prominent or porrected; in fact it would almost seem to be a freak of nature which has metamorphosed the porrected mesosternum of *Rutela* into the recurved pronotal horn of *Peperonota.* In its simple sterna, moreover, this genus affords a better representation of the *Geotrupidæ* (of which the *Rutelidæ* are the analogues in the Classification of MacLeay) than the ordinary types of the family. In addition to the preceding observations I shall only notice, that the rugose tuberculated clypeus, the identity in the mode in which the tarsal ungues of both sexes are notched, and the broad and very short scutellum, constitute its chief marks of distinction from the majority of the family to which it belongs.

As it is contrary to the strict rules of nomenclature to derive either a generic or specific name from a sexual character, I have abstained from employing the singular formation of the pronotum as a ground for the appellation of the insect; I therefore propose for it the name of

Peperonota Harringtonii.

Obscure luteo-fulva (♂) vel nigra (♀), capite supra nigro, antennarum clava fulva, pronoto maris fulvo, disco brunneo, fœminæ nigro punctato, elytris luteo- vel castaneo-fulvis, maculis minutis irregularibus, plus minusve confluentibus notatis.

Long. corp. lin. 10, ♂; lin. 9, ♀.

Habitat in India orientali, prope montes Himalayanas, et mecum (pro descriptione) communicato Dom. Harrington, F.L.S. Entomologo indefesso. (In Mus. Dom. Parry et Melly.)

The male has the head nearly flat and subtriangular, black above, and (except at the hind part) thickly covered with large but rather shallow punctures; the clypeus is not separated from the crown of the head, it is armed in the middle with a conical tubercle, between which and the eyes (forming a triangle) are two other tubercles; the labrum is short, rather dilated, and rounded at the sides, with the fore margin emarginate; the mandibles are black, with the basal portion pitchy, they are broad, and almost square, with the outer anterior angle porrected; behind this is a deep impression, serving to receive the basal joint of the antennæ, which, as well as the palpi, are pitchy; the clava with the extremity of its joints fulvous. The pronotum is fulvous, very glossy, and finely punctured, with a large, irregular, somewhat heart-shaped, dark pitchy patch in the middle, having a paler slender central line; the hind margin of the pronotum is extended into a slender, glossy, castaneous horn, which follows the curve of the pronotum, so as to form an arch over the scutellum and base of the suture of the elytra, which are depressed for its reception. The elytra are of a dull luteo-fulvous colour, not glossy, except at the depressed basal part (which is of a blackish colour), and they are covered with numerous darker brown, small, and more or less confluent spots, the basal part and the apical margin being nearly free from spots. The depressed basal part forms, with the scutellum, nearly a semicircle. The penultimate dorsal segment of the abdomen (which, as well as the last segment, is not covered by the elytra) is of a dull black colour, without visible punctures, but with a depressed transverse line near its base. The anal segment is dark fulvous, also impunctate. The legs are luteo-fulvous, with pitchy tarsi, and with the fore tibiæ pitchy on the inside; the spines of the tibiæ are black. The underside of the body is dull luteous, clothed with pale hairs, and the head is pitchy, with the jugulum and mentum castaneous.

The female is much darker coloured and smaller than the male. The head and pronotum black, the latter more strongly punctured; the two tubercles on the crown of the head are much less developed, forming in fact an almost continuous slight transverse carina; the front of the clypeus has, however, two distinct elevated tubercles. The mandibles are smaller than in the male, and the antennæ more luteous-coloured. The scutellum is black, glossy, and punctured, this part of the body and the base of the elytra being of the normal structure. The elytra are of a reddish chesnut colour, more glossy than in the male, punctured, and covered with small more or less confluent black spots. Each elytron exhibits two longitudinal narrow striæ, bounded by punctures, but lost before reaching their extremity; the base of the elytra is black and glossy, except the humeral angles, which are brighter fulvous. The underside of the body and legs are black, the latter slightly varied with luteous-red on the underside of the femora.

I cannot close this memoir without expressing my thanks to H. G. Harrington, Esq. the possessor of one of the finest collections of exotic Lepidopterous insects in this country, for an opportunity of describing and figuring this interesting addition to our knowledge of the Lamellicorn insects.

[P.S. Captain Parry possesses a female of this genus from Java, which has the pronotum and thighs of a rich orange-red, and the elytra much less irrorated with brown spots, but which I am unable to distinguish specifically from the type.]

L. *Description of a Species of Grasshopper from New South Wales. By* W. F. Evans, Esq. M.E.S.

[Read 4th Aug. 1845.]

Ephippitytha maculata, Evans. (Pl. XXI. fig. *c.*)

Wing-cases pale green, each with sixteen, nineteen, or twenty roundish spots of a bluish black colour, running along the inner edge of the marginal or principal nervure, and the inner margin of the wing case.

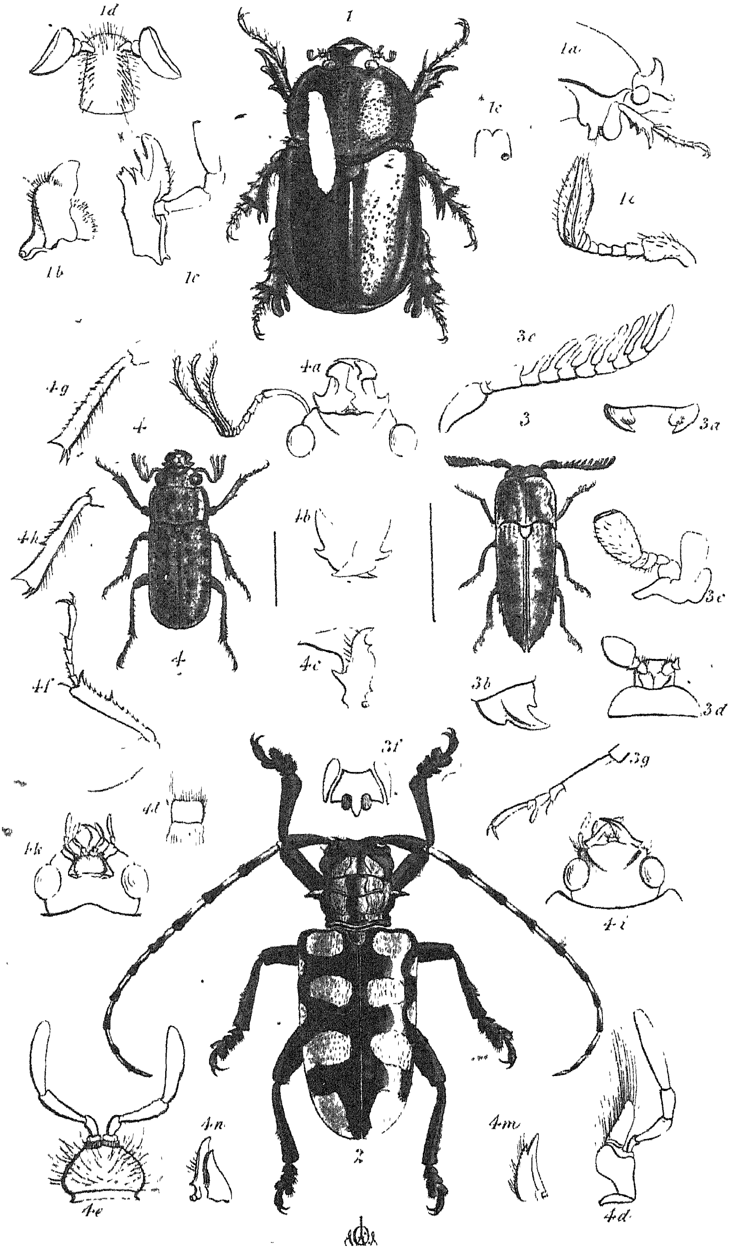
Wings one-eighth of an inch longer than the wing-cases; of a pale green colour, becoming gradually of a lighter tint towards the outer margin; with a pink tinge near the apex (as in the wing-cases), and a single bluish black spot near the tip.

Tibiæ of the hind legs with four bands of fuscous brown, of which colour are also the two basal joints of the tarsi.

Expanse of wings 4½ inches; length of body 1¼ inch.

In Mus. Britann., Hope, and my own.

London: printed by C. Roworth and Sons, Bell Yard, Temple Bar.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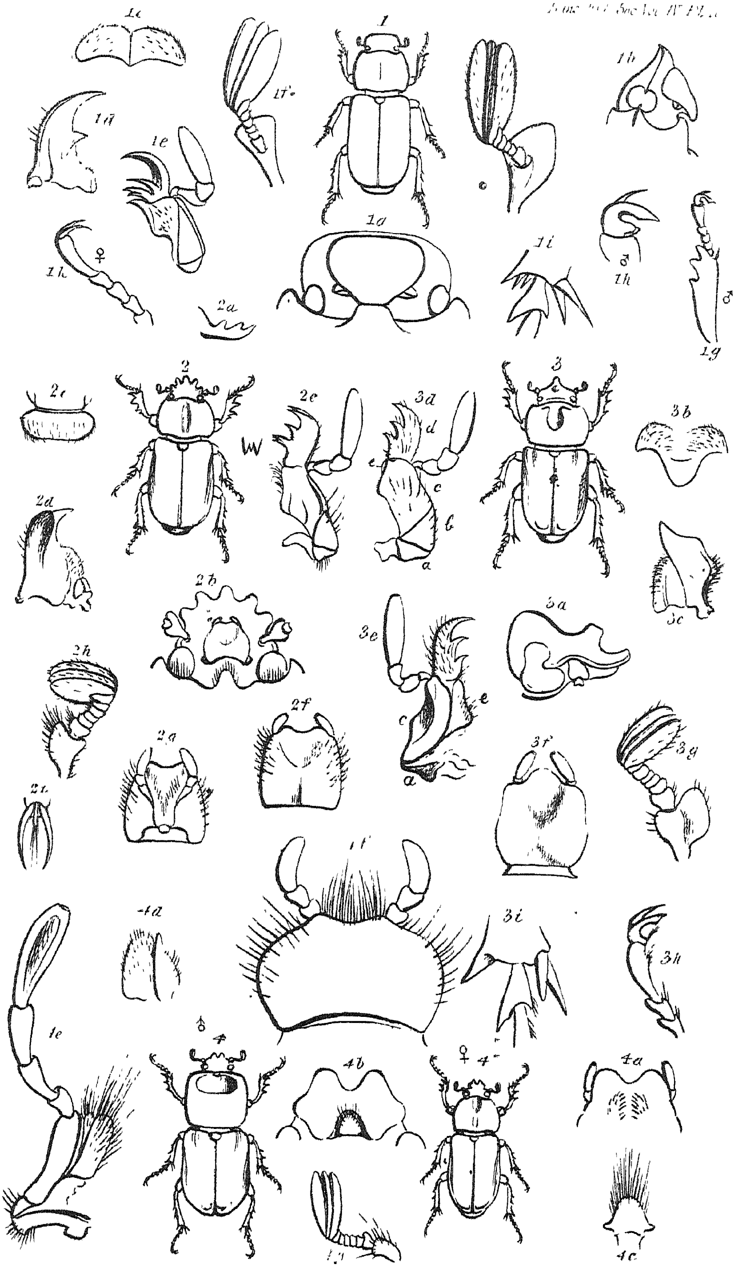

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Day & Haghe, Lith^rs to the Queen

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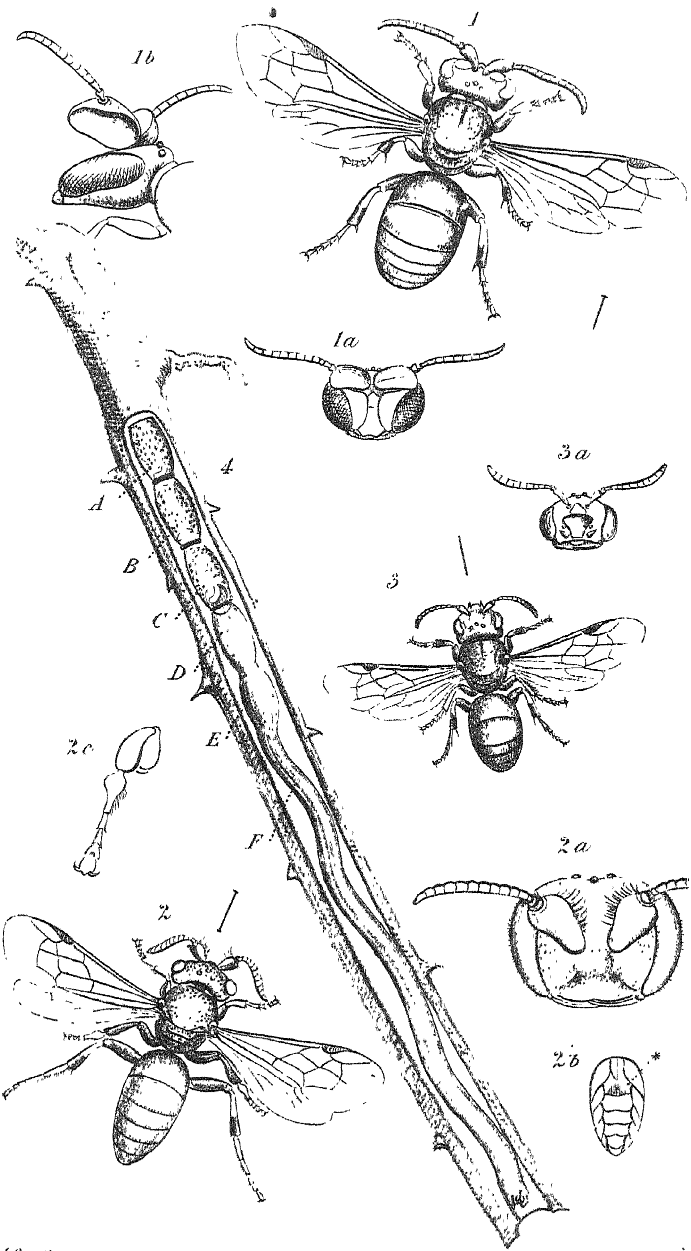

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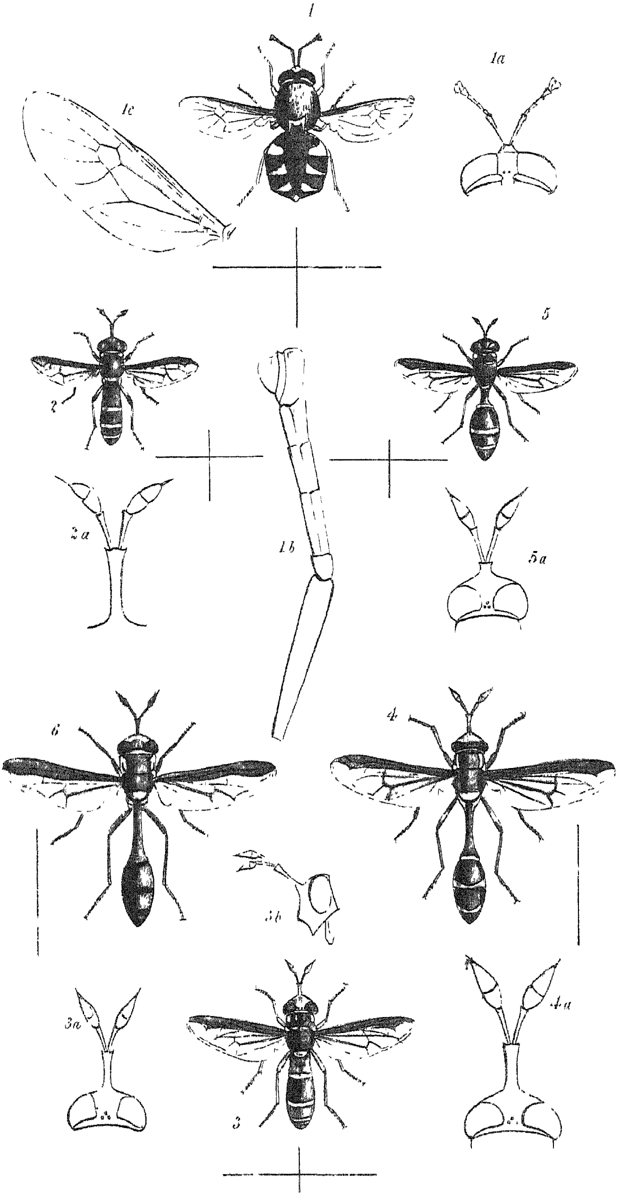
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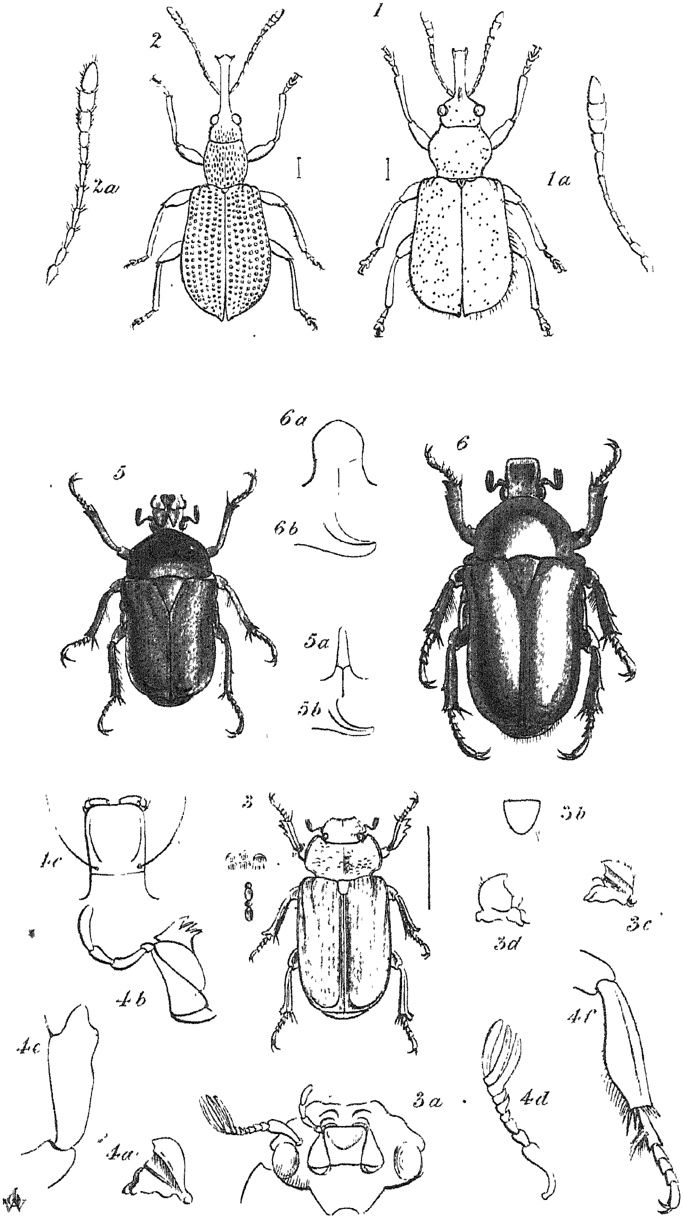

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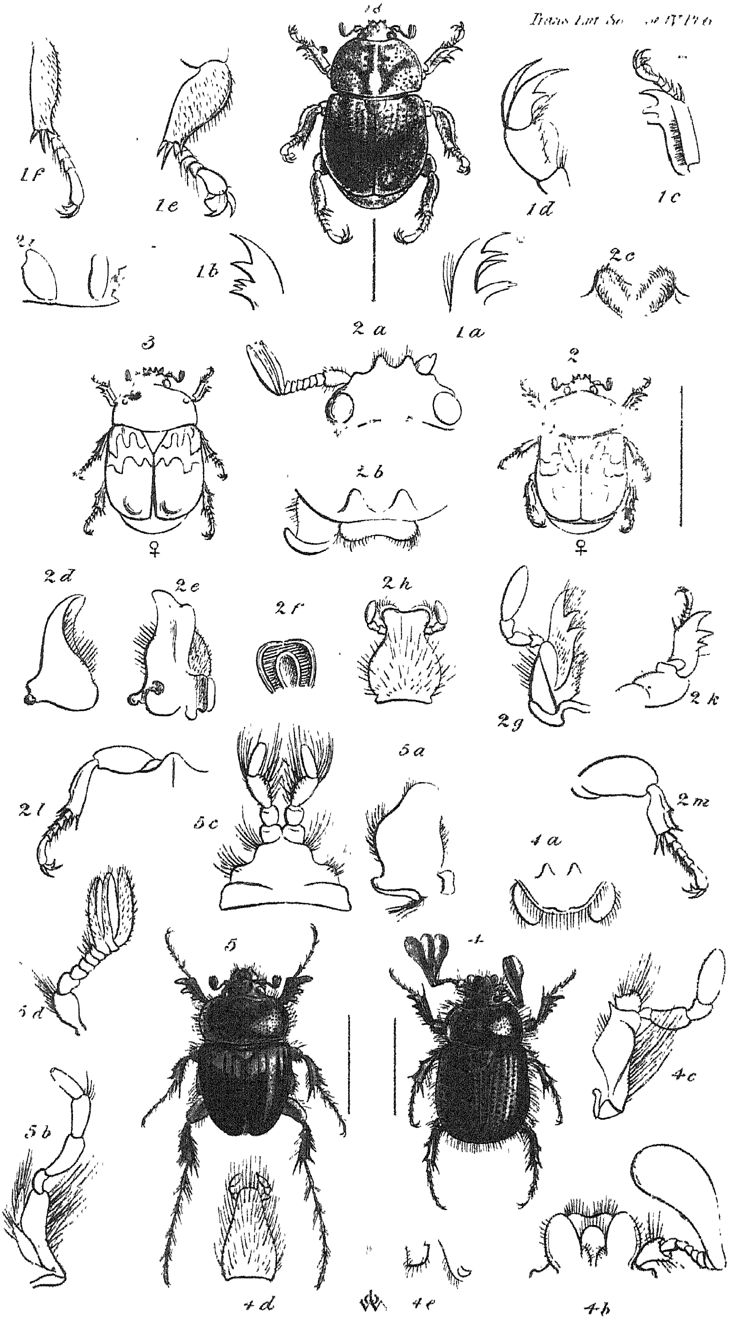
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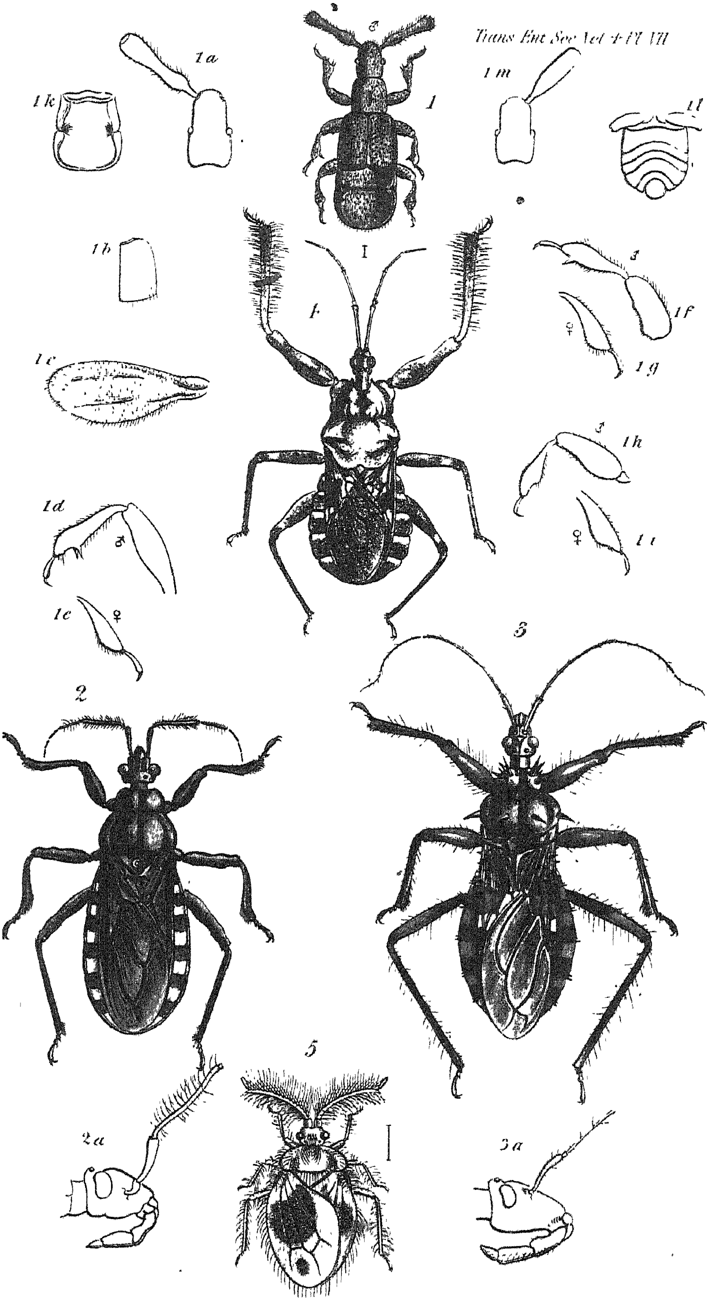

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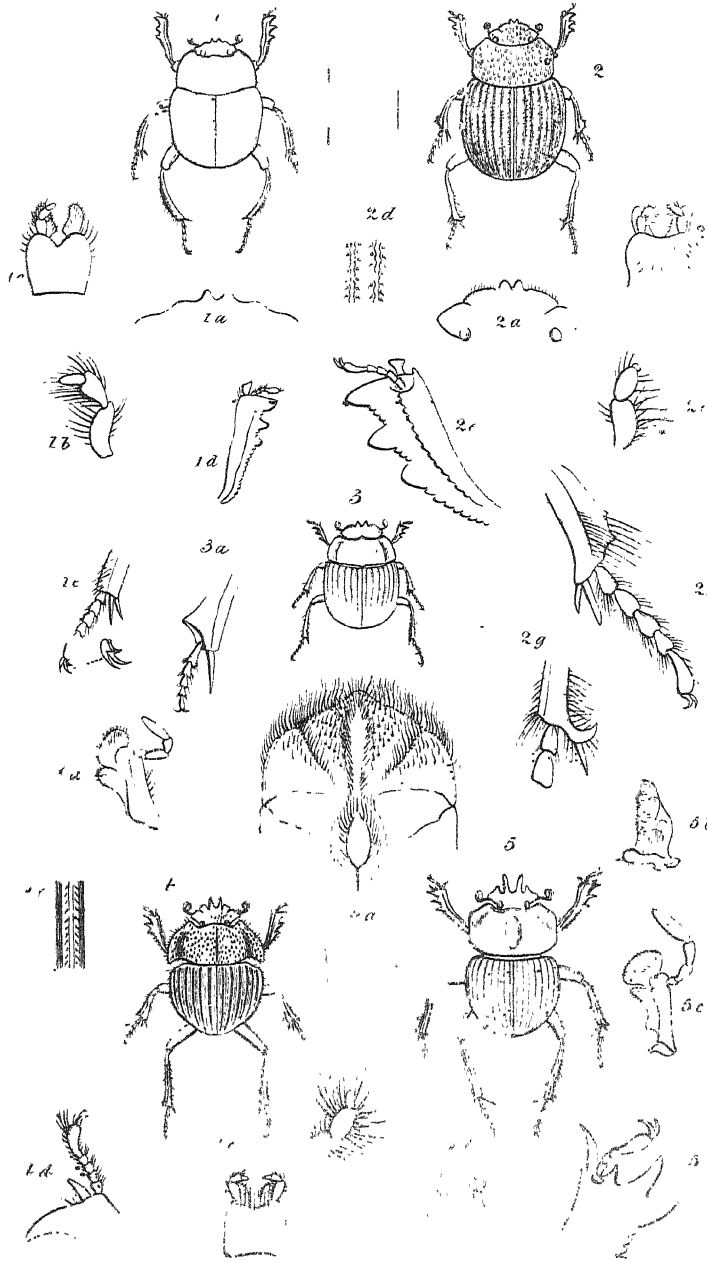

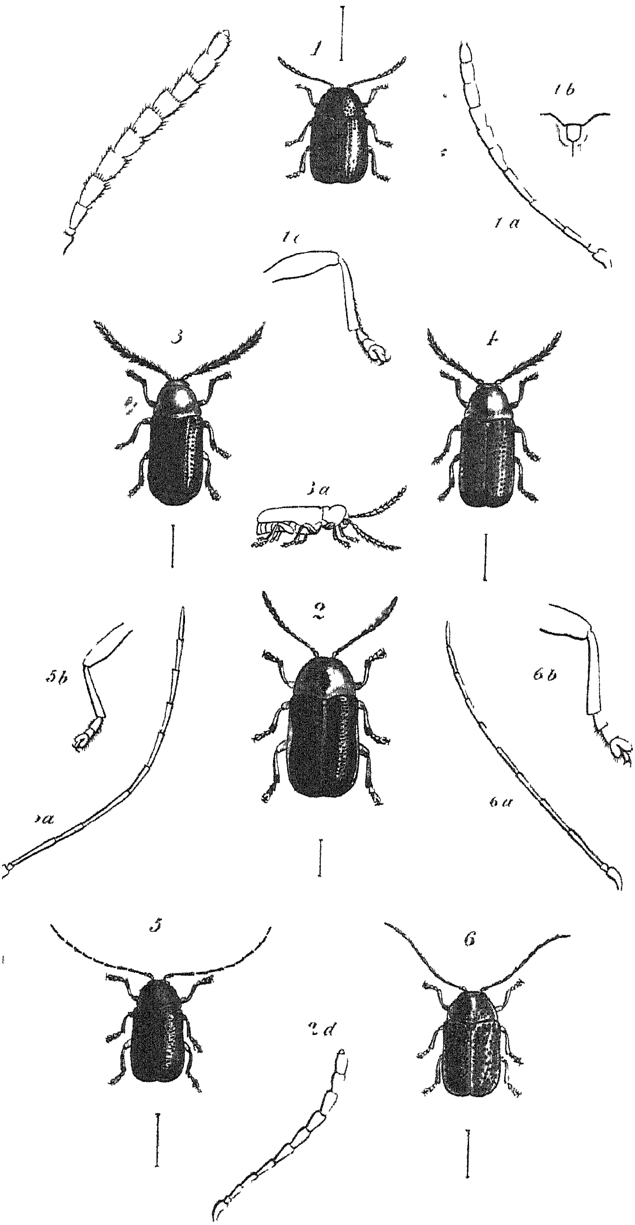
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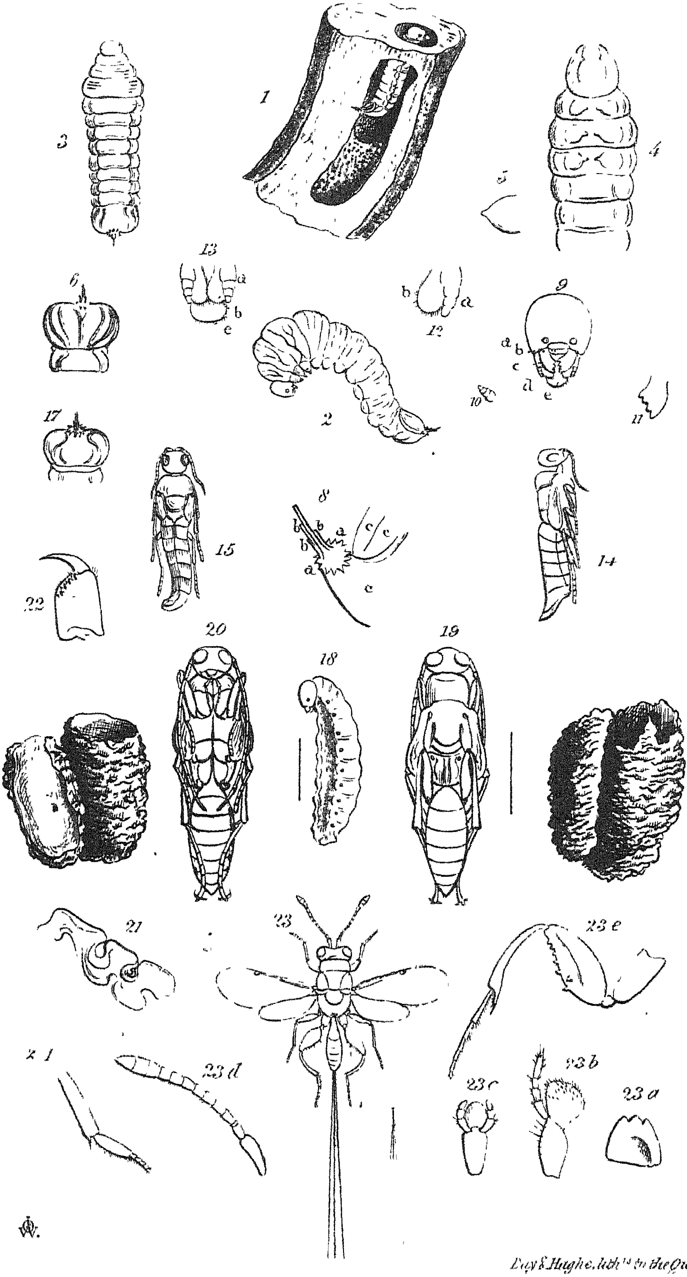

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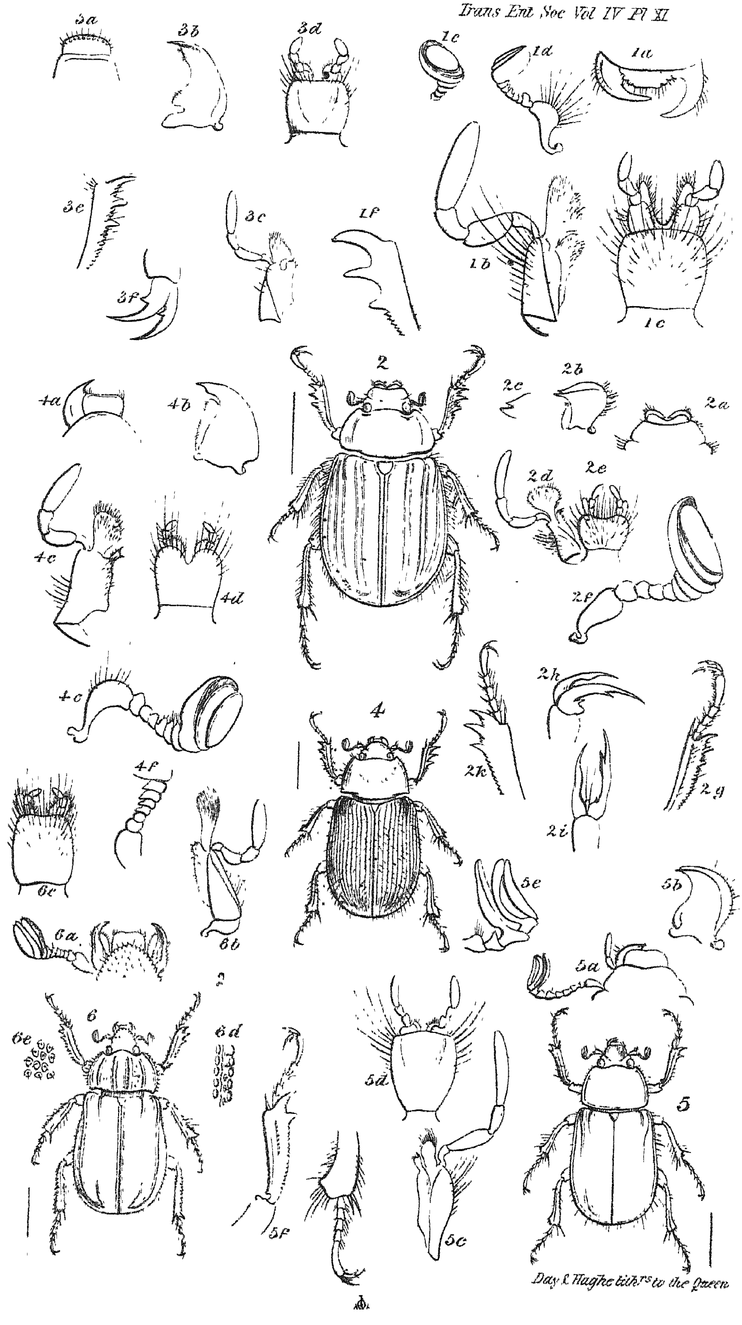

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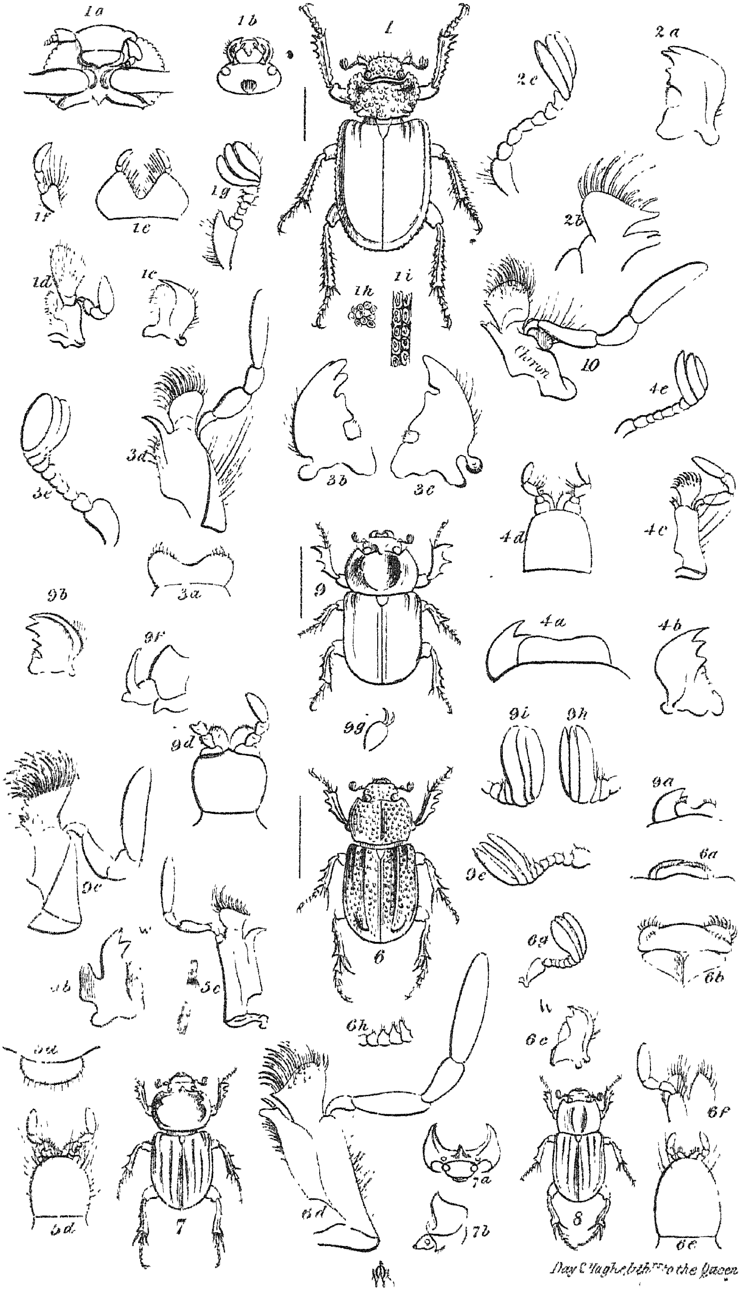

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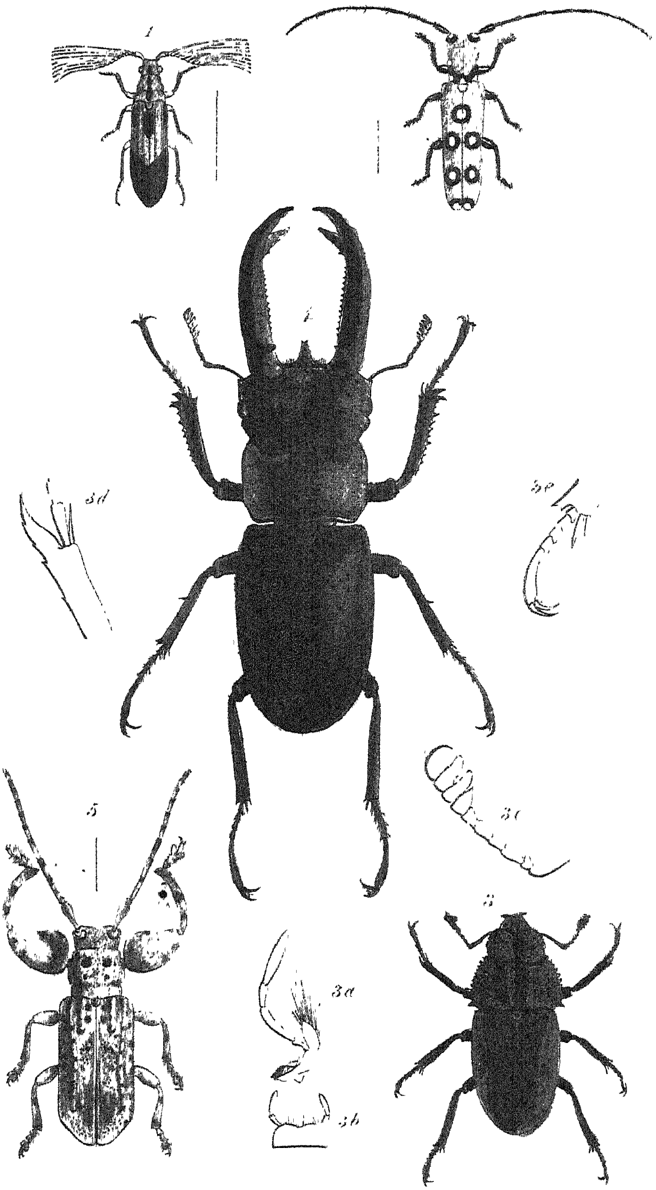

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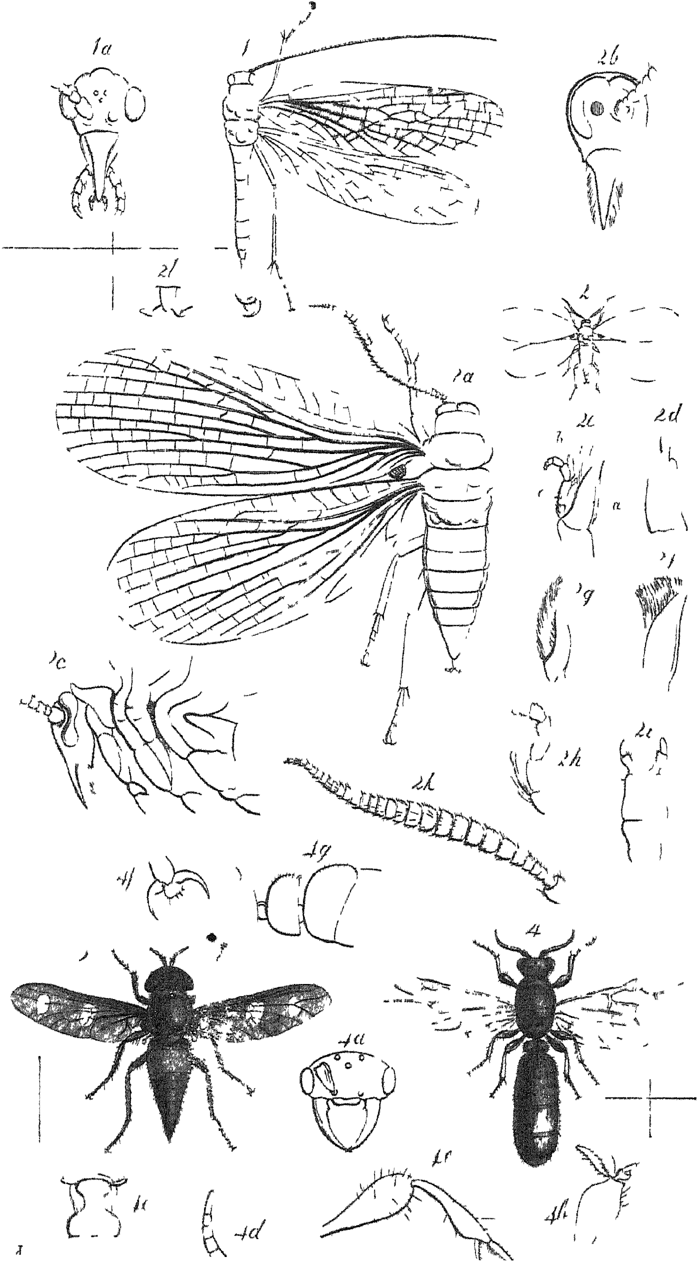

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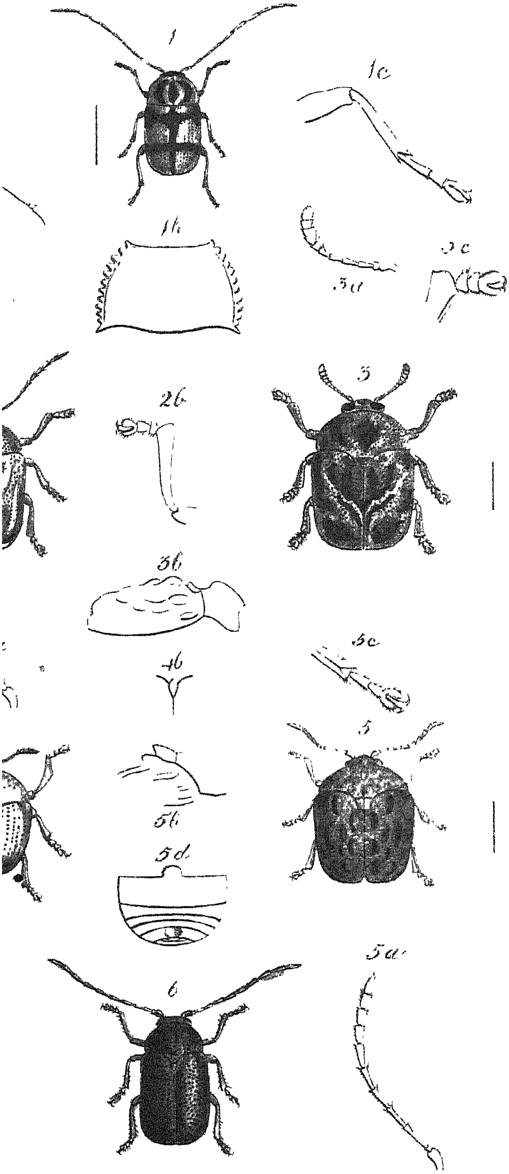

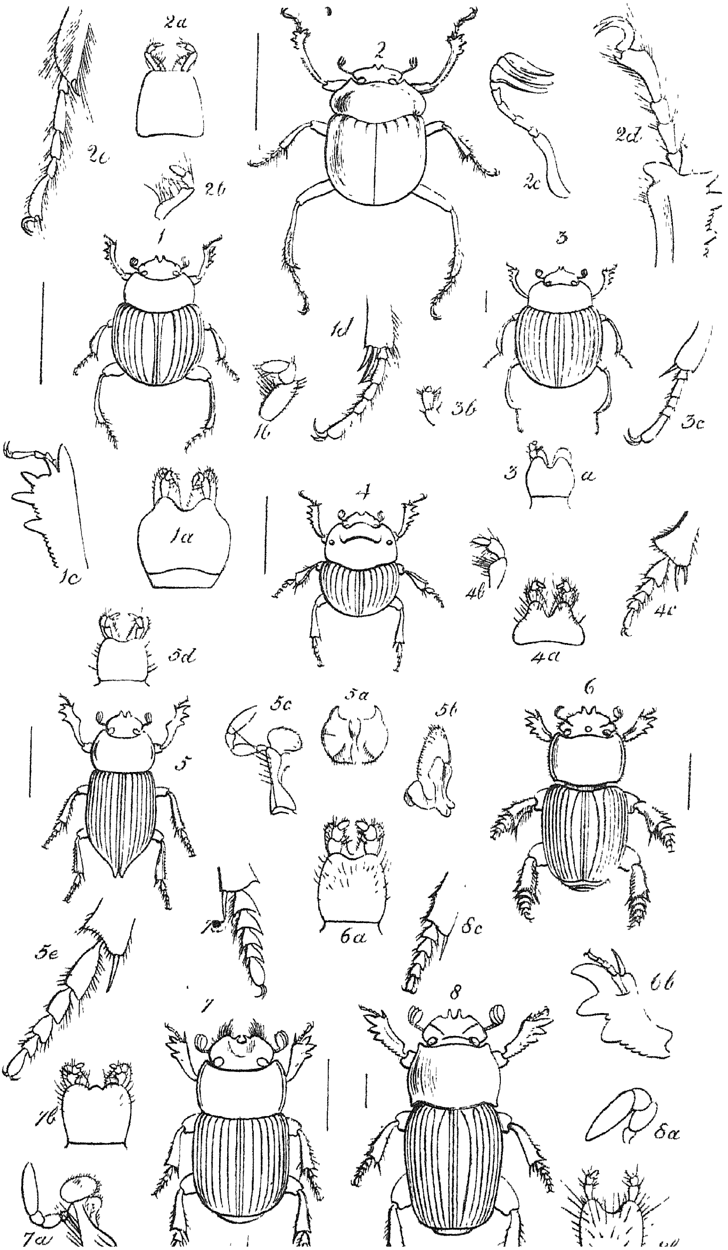
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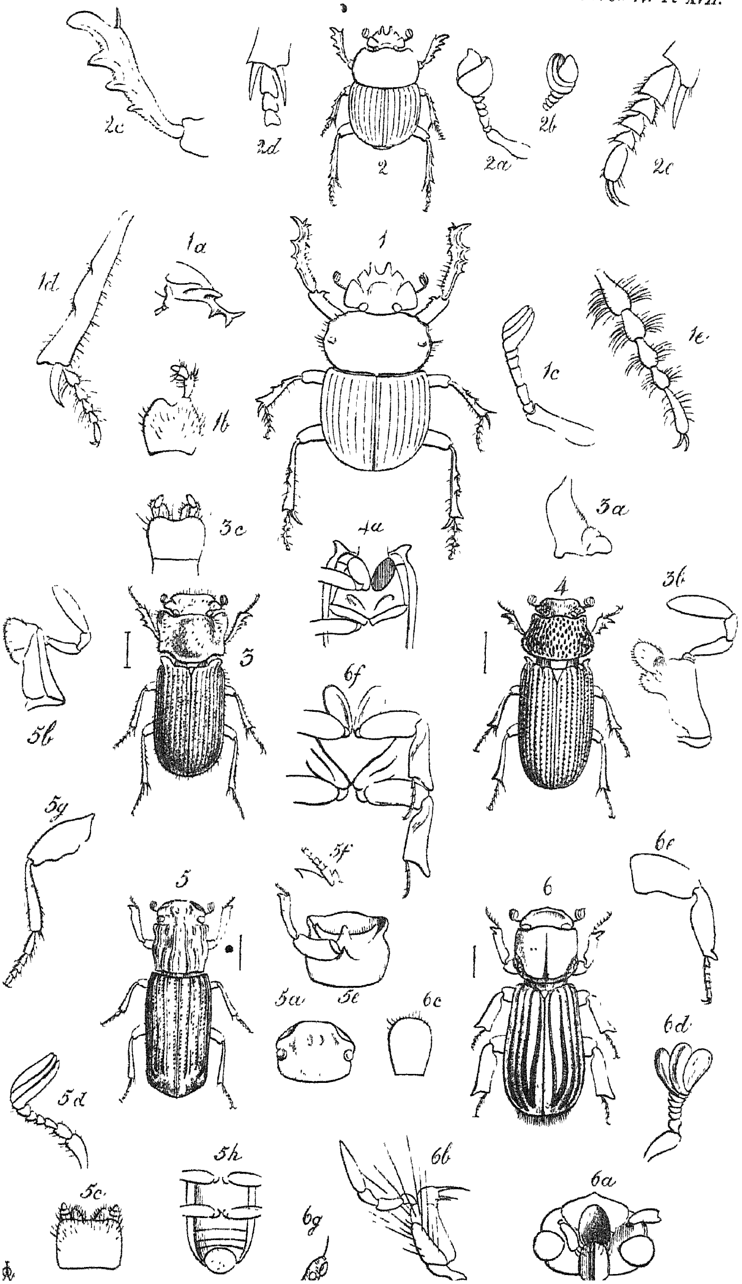

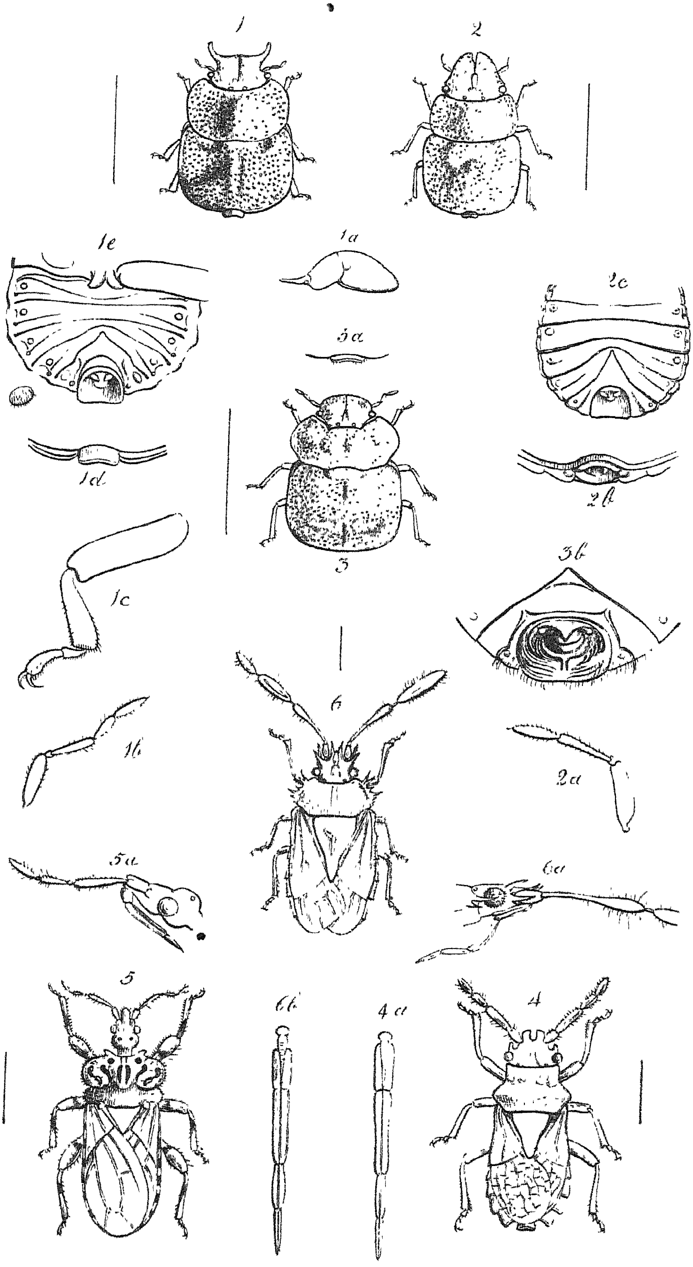
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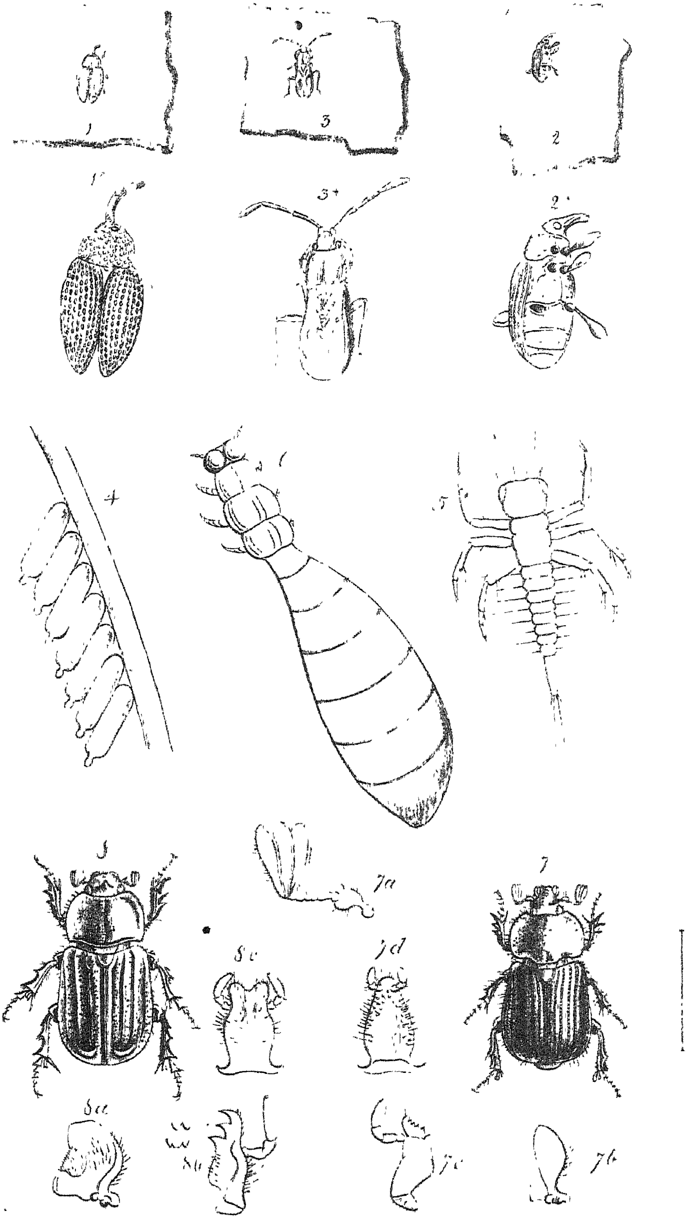
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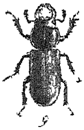

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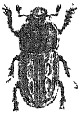

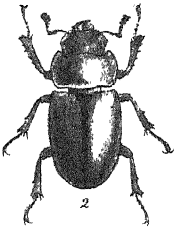

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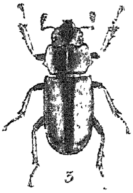

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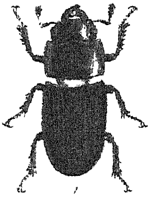

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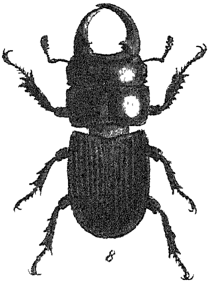

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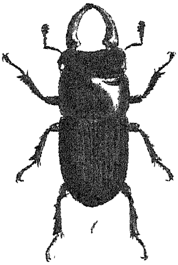

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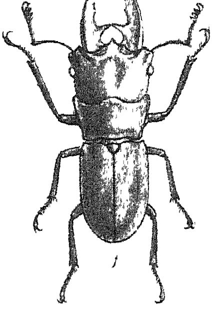

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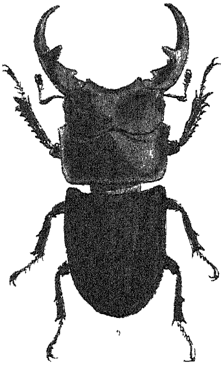

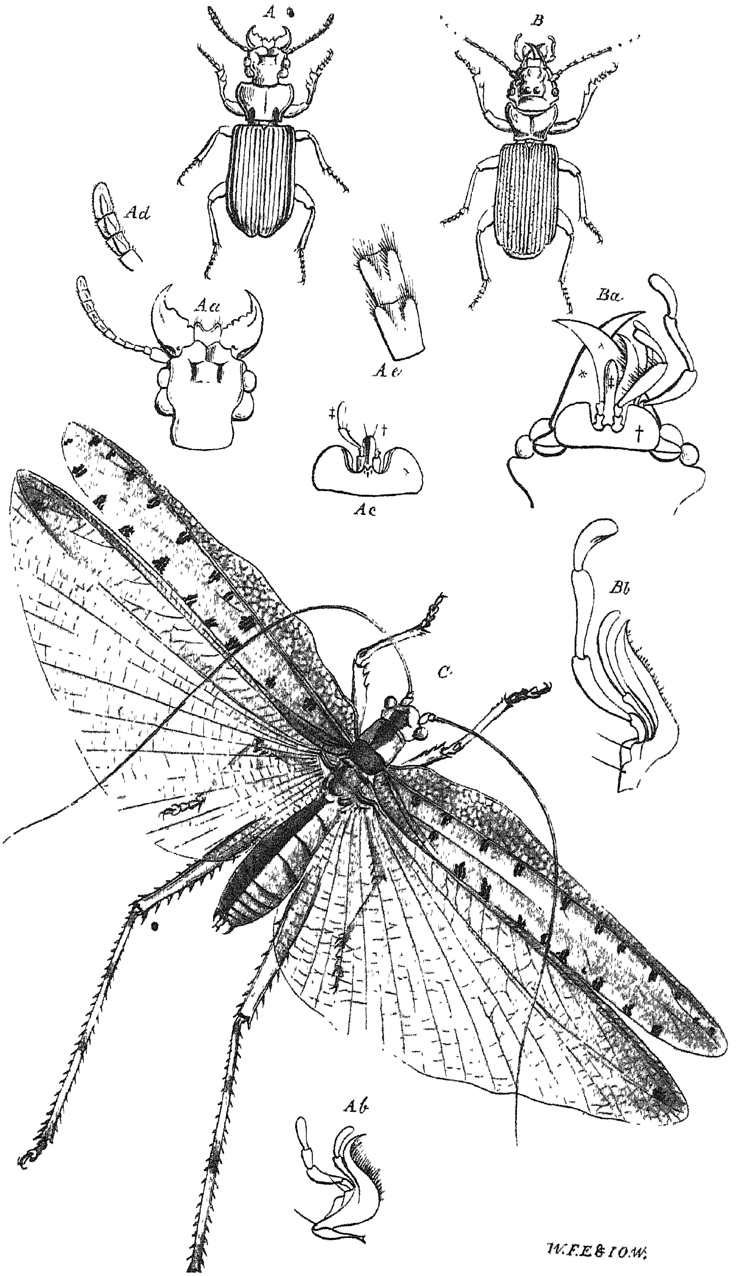
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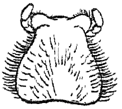
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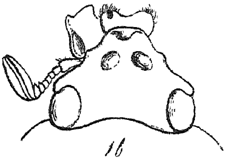
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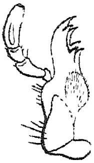
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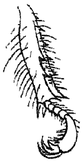

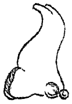
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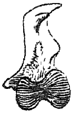
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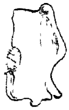
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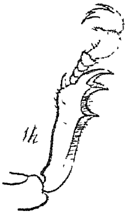
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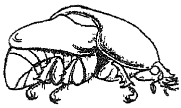
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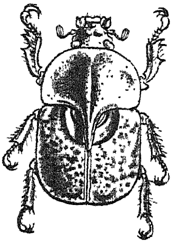

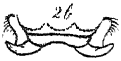
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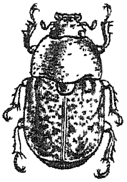

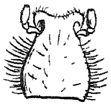
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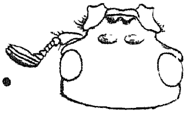
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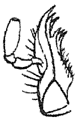
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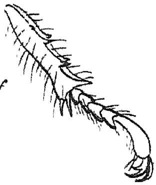
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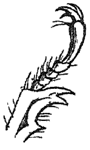
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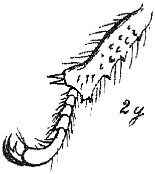
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BY-LAWS

OF THE

ENTOMOLOGICAL SOCIETY

OF LONDON,

ALTERED AND ADOPTED AT A SPECIAL MEETING
HELD ON THE 4TH JANUARY, 1847.

CHAP. I. *Object.*

THE ENTOMOLOGICAL SOCIETY OF LONDON is instituted for the improvement and diffusion of Entomological Science.

CHAP. II. *Constitution.*

The Society consists of British and Foreign Ordinary Members, the number of whom shall be unlimited; of Foreign Honorary Members, whose number shall not exceed ten; and of Foreign Corresponding Members, the number of whom shall be unlimited.

CHAP. III. *Management.*

The affairs of the Society shall be conducted by a Council, consisting of thirteen Members, to be chosen annually, four of whom shall not be re-eligible for the following year.

CHAP. IV. *Officers.*

The Officers of the Society shall consist of a President; three Vice-Presidents; a Treasurer, who may be a Vice-President; two Secretaries; and a Curator.

CHAP. V. *Annual Election of Officers.*

The President, Treasurer and Secretaries shall be elected annually out of the Council. The Vice-Presidents shall be nominated by the President, at the Meeting next after the Anniversary Meeting, from the Council. The President and two of the Vice-Presidents shall, however, not be eligible for re-election more than two years successively. The Curator shall be appointed by the Council.

CHAP. VI. *Duties of the Officers.*

The business of the President shall be to preside at all the Meetings of the Society and Council, and regulate all the discussions therein, and to execute, or see to the execution of the By-Laws and orders of the Society.

CHAP. VII. *Vice-Presidents.*

1. It shall be the duty of a Vice-President, in case of the absence of the President, to fill his place, or of a Member of the Council then present in the absence of all the Vice-Presidents, who shall for the time being have all the authority, privilege, and power of President.

2. If no Member of the Council shall be present at any Ordinary Meeting, the Members present shall nominate and appoint to be Chairman such Member as they shall deem fit.

CHAP. VIII. *Treasurer.*

1. It shall be the duty of the Treasurer to receive for the use of the Society all sums of money payable to the Society, and to disburse all sums payable by the Society out of the funds in his hands. He shall moreover furnish the Society with a true and particular account of all such receipts and disbursements twenty-one days previous to each Anniversary.

2. No payment exceeding £5, excepting for rent or taxes, shall be made by the Treasurer without the consent of the Council.

3. The Treasurer shall keep a book of Cheque Receipts for admission fees and annual payments; each receipt shall be signed by himself, the date of payment and name of Member paying being written both on the receipt and on the part of the cheque which is left in the book.

4. The Treasurer shall demand all arrears of annual payment, after such payment shall have been due three months.

5. The accounts of the Treasurer shall be audited annually previously to the Anniversary Meeting by a Committee of three Mem-

bers of Council, and three Members of the Society, to be appointed by the President, of which Committee three shall be a quorum.

CHAP. IX. *Secretaries.*

1. It shall be the duty of the Secretaries to keep a list of all the Members of the Society, stating their address, place of residence, &c.; to produce to the Council all correspondence in any way connected with the Society at the next Meeting after such correspondence shall have been received, or taken place; to edit the Transactions and Proceedings under the direction of the Council, and to take care that the Proceedings are published and ready for delivery to the Members at a Meeting of the Society within six months after the entry of such Proceedings in the Minute Book has been confirmed.

2. Minutes of the proceedings of Monthly and Council Meetings shall be taken by one of the Secretaries; or, in their absence, by any Member whom the Chairman may appoint for the occasion.

3. The Minutes shall be fairly copied by one of the Secretaries into a Minute Book, and at the next Meeting read aloud for confirmation.

CHAP. X. *Curator.*

1. It shall be the duty of the Curator to take care of the Library and Cabinets of the Society;* to display, arrange, and class the insects, &c. A Catalogue of the Library shall be made, and a Catalogue of the insects contained in the Museum shall be kept by him, containing the names of the donors and the times and places of their capture, as far as practicable.

2. All Members of the Society shall have free access to the Cabinets at the time specified in the By-Laws for the purpose of examination and description, excepting that if a Member or Stranger present specimens of new insects to the Society with manuscript names attached, specifying his intention of publishing the same, then no individual, whether Member or Stranger, shall during the space of twelve months publish any description or figure of such specimen.

3. No Stranger shall be allowed to see the Library or Cabinets unless in company with a Member, but a note addressed to the

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* The Curator is in attendance at the Rooms of the Society every Tuesday between the hours of One and Seven o'clock, P.M., for the purpose of showing the Collections, &c. to Members of the Society.

Curator, Secretary or Member in attendance, shall be deemed a sufficient introduction, the Curator, Secretary or Member in attendance then acting as the introducing Member.

4. No Stranger shall be permitted to take away or to describe any insect, or to make a drawing of the same, except by special permission of the Council previously obtained.

5. A Book for Synonyms shall be kept by the Curator, and any Member making observations therein must sign his name to them.

CHAP. XI. *Library Regulations.*

1. A Catalogue of the Library and MSS. shall be kept by the Curator, with the names of the Donors.

2. The Library and Cabinets shall be under the superintendence of a Committee consisting of the President and four Members, who shall be elected by the Council at the first meeting in February in every year, (three of whom shall be a quorum), and who shall render an Annual Report to the Council at the first Meeting in the following January.

3. No Member shall be allowed to borrow from the Library more than two volumes at one time, or keep in his possession the same longer than one week, without leave of the Curator.

4. If the Books are torn, injured, lost, or not forthcoming when demanded by the Curator, full compensation shall be made for the same by the borrower.

5. The Secretaries shall call in all books borrowed from the Library on the 5th day of January and 5th of July in every year; and in case the same be not returned on or before the General Meeting of the Society in the following month, notice thereof shall be given by the Curator to the Council, who shall then direct a second notice to be sent to the Members retaining such books, and in case the same be not returned within the further space of four weeks from the date of such second notice, so sent, such Members or Member shall in future be disqualified from borrowing books from the Library without the special permission of the Council. A printed copy of the Library Regulations shall be pasted in every work or volume in the Library.

CHAP. XII. *Election and Admission of Members.*

1. Every Candidate for admission into the Society shall be proposed by three or more Members, who must sign a Certificate in recommendation of him.

2. One of the three must have personal knowledge of the Candidate.

3. The Certificate shall specify the name, rank, profession, qualifications and usual place of residence of the Candidate.

4. The Certificate having been read at one of the Ordinary Meetings, shall be suspended in the Room, and the person therein recommended shall be balloted for at the second Ordinary Meeting after such reading.

5. The Elections of Ordinary Members shall be void unless the admission fee shall be paid within twelve months after the date of their Election; the Council shall, however, possess a discretionary power to extend the time of payment.

6. The method of voting for the election of Members is by Ballot, and two-thirds of the Members balloting shall elect.

CHAP. XIII. *Admission Fee.*

1. The Admission Fee shall be £2 : 2*s.*, the Annual Contribution £1 : 1*s.*; and the composition in lieu of the Annual Contribution £10 : 10*s.*

2. The Annual Contribution shall become due on the first day of January in every year in advance; but any Member elected after the 30th of September will not be called upon for his subscription for the remaining portion of that year.

CHAP. XIV. *Withdrawing and Removal of Members.*

1. Every Member having paid all fees due to the Society shall be at liberty to withdraw therefrom upon giving notice in writing to the Secretary.

2. Whenever written notice of a Motion to be submitted to a General Meeting for removing any Member from the Society, signed by the Chairman for the time being of the Council, on the part of the Council, or by any five or more Members, shall have been delivered to the Secretary, such notice shall be read from the Chair at the four successive Ordinary General Meetings next following the delivery thereof; and within fourteen days after the last of such Meetings, a Special General Meeting shall be called for taking such Motion into consideration, and deciding it by method of Ballot; whereat if eleven or more Members shall ballot, and a majority of the Members balloting shall vote that such Member be removed, he shall be removed from the Society.

3. Whenever any Ordinary Member of the Society shall be in arrear for five years in the payment of his annual contribution, notice

thereof in writing shall be given or sent to him, together with a copy of this section; and in case the same shall still remain unpaid, the Treasurer shall give notice thereof to the Council, who shall cause the name of such Member to be read at the three following Ordinary Meetings of the Society, together with a statement of the sum due by him for arrears; and at the fourth Ordinary Meeting the removal of such Member of the Society shall be decided by method of Ballot, in like manner as is specified in the second Section of this Chapter.

CHAP. XV. *Privileges of Members.*

1. The Members have the right to be present, to state their opinion and to vote at all Meetings; to propose Candidates for admission into the Society; to introduce Visitors at General Meetings of the Society, and to introduce scientific strangers to the Library and Museum; to purchase the Transactions of the Society at reduced prices, and to have personal access to the Library and Museum.

2. No Member to introduce more than one Visitor.

3. Ordinary Members of the Society resident more than fifteen miles from London shall be entitled to receive the Transactions gratuitously when their Annual Contribution has been paid.

4. All the Honorary and Ordinary Members are eligible to any office in the Society, provided the latter are not more than one year in arrear in the payment of the annual subscription.

5. No Member shall be entitled to vote on any occasion until he shall have paid his subscription for the year last past.

CHAP. XVI. *Foreign Members.*

1. Every Foreigner who has distinguished himself as an Entomologist, or who has shown himself able and willing to promote the ends for which the Society is founded, may be elected a Foreign Member; his Annual Contribution shall be £1 : 1*s.*, and he shall be entitled to the same privileges as other Members.

2. Foreign Members shall not be required to sign the Obligation until present at a General Meeting of the Society, and when so present shall be admitted as other Members.

3. Foreign Members shall be exempt from the payment of any Admission Fee.

4. Foreigners and Residents abroad may be elected as *Corresponding Members*, who shall not be subject to the payment of any Annual Contribution, and who shall be entitled to a copy of

the Journal of Proceedings of the Society, but not to the Transactions; which, however, may be purchased by them at the reduced price paid by the ordinary Resident Members. The privileges of Corresponding Members shall however cease in case they shall at any future time be residents in the united kingdom for the space of twelve months, unless sanctioned, in the case of any particular Member, by a special vote of the Council.

CHAP. XVII. *Honorary Members.*

1. Every person proposed as an Honorary Member shall be recommended by the Council, and be balloted for, and elected, and be liable to be removed in the like form and manner, and be subject to the same rules and restrictions, as an Ordinary Member.

2. Honorary Members shall be exempted from the payment of Fees and Contributions; and shall possess all the privileges of Ordinary Members.

3. No resident in Great Britain can ever be an Honorary Member, except the Honorary President, the Rev. William Kirby, A.M. F.R.S. &c., and William Spence, Esq., F.R.S.

CHAP. XVIII. *Meetings of the Society.*

1. The Ordinary General Meetings of the Society shall be held on the first Monday in every month in the year, beginning at eight o'clock precisely in the evening, or at such other time as the Council shall direct.

2. At the Ordinary Meetings the order of business shall be as follows.

3. The names of the Visitors allowed to be present at the Meeting shall be read aloud by the Chairman.

4. The Minutes of the last Meeting shall be read aloud by the Secretary, and proposed for confirmation by the Meeting, and signed by the Chairman.

5. The Presents made to the Society since their last Meeting shall be announced and exhibited.

6. Certificates in favour of Candidates for admission into the Society shall be read or submitted to ballot.

7. Members shall sign their names in the Obligation Book, and be admitted.

8. The President shall have a discretionary power as to the Papers to be read at the Meetings of the Society; and the Secretary, assisted by the President and any Member or Members of the

Council, shall determine as to the priority in which such papers shall be read, and propriety of omitting any portion of the same.

9. All Memoirs which shall be read at any General Meeting of the Society shall become the property of the Society, unless otherwise stipulated for previous to the perusal thereof.

10. Entomological communications shall be announced and read either by the Author or the Secretary. When the other business has been completed, the persons present shall be invited by the Chairman to make their observations on the communications which have been read, and on the specimens or drawings which have been exhibited at the Meeting.

11. No Motion relating to the government of the Society, its By-Laws, the management of its concerns, or the election, appointment or removal of its Officers, shall be made at any Ordinary Meeting.

CHAP. XIX. *Special General Meeting.*

Upon the requisition of any six or more Members, presented to the President and Council, a Special General Meeting of the Society shall be convened, and any proposition to be submitted to such Meeting shall be stated at length in the Notice to Members.

CHAP. XX. *Annual General Meeting.*

1. The Annual General Meeting of the Members shall be held in the Meeting-room on the fourth Monday in January of every year.

2. The objects of the Meeting shall be to choose the Council and Officers for the then ensuing year; and to receive from the Council, and hear read, their Annual Report on the general concerns of the Society.

3. The Council for the time being shall annually cause to be prepared two written Lists, one of which (No. 1 in the Schedule hereto) shall contain the names of four Members, whom they shall recommend to be removed from, and of four other Members to be elected into the Council; and the other List (No. 2) shall contain the names of such Members as they shall recommend to fill the offices of President, Treasurer, and Secretaries, for the year ensuing; which Lists shall be read at the Monthly Meeting in January in every year, and shall then be fixed up in the Meeting-room until the day of election. And copies of such Lists shall be transmitted to every Member whose known residence shall be in London, or

within twenty miles thereof, at least seven days before the Annual General Meeting shall take place.

4. On the day of voting, each Member present shall put his Balloting Lists into the respective Glasses to be provided for such occasion; before doing which, however, in case any name or names shall have been added to the Lists proposed by the Council, he shall strike out the name or names of those persons recommended for whom he does not vote. And if more names shall be suffered to remain in any List than the number of persons to be elected or removed, such Lists shall be rejected. And in case the names suffered to remain shall be less than the number of vacancies to be supplied, those names only which shall remain in the List shall stand as voted for.

5. The President shall appoint two or more Scrutineers from the Members present, not being Members of the Council, to superintend the Ballots and report the results to the Meeting.

6. The Ballot for the Council shall remain open for one quarter of an hour, at the least; and the Ballot for the Officers for one quarter of an hour, at the least, after the result of the Ballot for the Council shall have been declared.

7. If from any cause an election shall not take place of persons to fill the Council, or any of the offices aforesaid, then the Election of the Council and Officers, or the Election of Officers, as the case may be, shall be adjourned until the next convenient day, of which notice shall be given, in like manner as is directed for the Annual General Meeting.

8. No Ballot, either for the election of Members or any other business, shall be taken unless nine Members are present.

CHAP. XXI. *Transactions.*

1. The Transactions shall consist of Papers communicated to the Meetings of the Society.

2. The Transactions shall be published from time to time, and at such prices as the Council shall direct for each Part or Volume; but the price for one copy of each Part or Volume, to each Member who shall have paid his Annual Contribution for the year in which such Part or Volume shall be published, shall not exceed three-fourths of the price charged to the public.

3. Foreign Members of the Society who shall have paid the Annual Subscription for the year, and ordinary English Members

resident more than fifteen miles from London, shall be entitled to receive the Transactions of the Society published during the year without any further payment.

4. The superintendence of the Publications shall be by a Committee, which shall consist of thirteen Members to be appointed by the Council, including the President, Vice-Presidents, Treasurer, and Secretaries.

5. The Committee of Publication shall consider every Paper which shall have been communicated to a General Meeting of the Society, and shall report to the Council thereon; but no Paper shall be reported on at any Meeting of the Committee unless there shall be three or more Members present; and such Committee shall be convened by the Secretary every third month, when all papers read since the last Meeting of Committee shall be produced and referred.

6. Authors of Memoirs to be published in the Transactions of the Society shall be allowed an unlimited number of Copies of their Communications, the entire expense whereof shall, however, be borne by themselves.

7. A Journal of Proceedings of the Society shall also be published half-yearly, containing Abstracts of the Papers read and Notices of other Matters communicated at the Ordinary Meetings of the Society, which Journal, together with the Transactions, shall be edited by the Secretaries, or one of them, and shall be bound up and sold with the Transactions.

CHAP. XXII. *Alteration of the By-Laws.*

Any of the By-Laws of the Society may at any time be repealed, or altered and amended, or others adopted in lieu thereof, at any Meeting of the Society, to be specially summoned in pursuance of Notice to be given to the President and Council, to be signed by six Members at least, such Notice to specify the intended repeal or alteration, and to be read at three General Meetings of the Society previous to such Special Meeting.

THE SCHEDULES REFERRED TO IN CHAPTER XX. OF THE PRECEDING BY-LAWS.

No. 1.

Form of the List for the Council.

List of Four Members of the present Council recommended by the present Council to be removed at the Election on the day of January, 18 .*

A. B.	
C. D.	
E. F.	
G. H.	

List of Four Members recommended to be elected into the Council.

I. K.	
L. M.	
N. O.	
P. Q.	

No. 2.

Form of the List for the Officers.

List of Persons recommended by the present Council to be appointed to the offices of President, Treasurer, and Secretaries of the Society, at the Election on the day of January, 18 .*

President ....R. S.	
Treasurer ....T. U.	
Secretaries .... W. X. Y. Z.	

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* If any of the Names in these Lists be objected to, they must be struck out previous to the Ballot, and other Names substituted in their stead in the blank spaces left for that purpose.

London: Printed by C. Roworth and Sons, Bell Yard, Temple Bar.

JOURNAL OF PROCEEDINGS

OF THE

ENTOMOLOGICAL SOCIETY OF LONDON.

[N.B.—The following 'Proceedings' for 1840—46 were reprinted in 1864. The Roman numerals in square brackets denote the paging of the original edition.]

[iii.] Jan. 6th, 1840.—The Rev. F. W. Hope, M.A., F.R.S., &c., President, in the Chair.

The President announced the safe arrival of W. S. Macleay, Esq., and his collections in New South Wales, and his intention to publish descriptions of various remarkable Australian groups. He had ascertained that the Agaristæ are diurnal in their flight, thus confirming their relation with the Uraniæ, as suggested in his memoir in the 'Transactions of the Zoological Society.'

Mr. Westwood announced the capture of a species of Cerapterus (but forming a separate subgenus) near Rio Janeiro, all the other species of the family Paussidæ being inhabitants of the old world.

Mr. Waterhouse exhibited some remarkably small specimens of Garden white butterflies, captured in Devonshire, but very confined in their locality.

The President exhibited specimens of Goliathus torquatus ♀, Eudacilla Morgani, and other rare insects, recently received by him from Sierra Leone; also a new species of Adelotopus and another genus allied thereto, with other insects from New Holland.

Mr. Westwood exhibited a living specimen of Clerus alvearius, which he had recently reared from a nest of Osmia muraria, brought by him from France two years and a half previously.

The following memoirs were read:

Description of a new species of Trachyderes. By Edward Newman, Esq., F.L.S.

Trachyderes venustus, *N.* Piceus, elytrorum fasciis duabus maculáque singuli subrotundâ apicali læte stramineis: scutello elongato sublineari medio longitudinaliter impresso, piceo. Corp. long. 1·15 unc. Inhabits Demerara. Mr. Schomburgk.

Observations on the species of Spiders which inhabit cylindric tubes, covered with a moveable trap-door. By J. O. Westwood, Esq., F.L.S.

After noticing the various species of Spiders which have been described as making trap-door nests, and determining the West-Indian species to be the Aranea venatoria of Linnæus, and to belong to the genus Actinopus, *Pty.* (Sphodros, *Wlck.*) instead of Mygale and Cteniza, to which it has been referred, a very detailed description is given

of a new species congenerous with the last-mentioned insect, of which living speci-
[iv.] mens had been forwarded to the Society from Barbary by Edward A. Drummond Hay, Esq., Her Majesty's Consul-general at Tangiers, with the following characters:—

Actinopus ædificatorius, *W.* Piceo-niger nitidissimus, corpore subtus pilisque maxillarum pallidioribus; abdomine obscuro fusco-sericeo, subtus ad basin maculis 4 luteis; cephalo-thorace supra et postice semicirculariter valde impresso, pedibus longitudine fere æqualibus. Long. corp. lin. 14. Inhabits Barbaria. Mr. Drummond Hay.

Observations on the structural characters of the Death-watch, with the description of a new British genus belonging to the family of Psocidæ. By J. O. Westwood, F.L.S.

After noticing the inaccuracies into which several recent authors have fallen relative to the structure of the Death-watch, a new British genus is characterized as follows:—

Clothilla, *W.* Corpus apterum. Caput subtriangulare. Antennæ longæ, articulis circiter 27. Prothorax brevis. Pedes simplices, tarsis 3-articulatis.

Clothilla studiosa, *W.* Luteo-albida, oculis brunneis, antennis fuscis, labro albido, incisuris abdominis brunneis, pedibus albidis. Long. corp. lin. 1. Inhabits the interior of houses.

February 3rd, 1840.—The Rev. F. W. Hope, President, in the Chair.

Mr. Westwood exhibited some original drawings of Crustacea made by Mr. Wallcot of Bristol, also various larvæ forwarded to him by Mr. Wallcot, jun., including one which that gentleman had no hesitation in considering as that of Platyrhinus latirostris, which, however, closely resembled the larva of a Leptura.

He also exhibited drawings of a minute white Acarus, found on the backs of books placed against a damp wall, and also of the larva and pupa of a species of Latridius found in the same situation, and of an exceedingly minute six-footed Acarus (visible only with a lens of high power) found amongst the hairs of the body of the last-mentioned larva.

Mr. S. Stevens exhibited a beautiful moth of large size from the interior of Africa, having the appearance of the genus Erebus, but with short palpi and shortly bipectinated antennæ, belonging to the family Bombycidæ (Saturnia Isis, Westw. MSS., of which a figure and description will shortly appear in the 'Naturalist's Library').

Mr. Hope exhibited a Scolopendra from New South Wales, in which one of the two hind feet was very much smaller than the other, and which was supposed to have resulted from the reproduction of the limb.

The conclusion of Mr. Westwood's memoir on Trap-door Spiders was read.

March 2nd, 1840.—The Rev. F. W. Hope, President, in the Chair.

A quantity of silk cocoons from the Cape of Good Hope was presented by Mr.
[v.] Dukeford, who requested information as to the possibility of their being serviceably employed in the silk trade.

Mr. Bainbridge exhibited a monstrous Lucanus Cervus, one of the mandibles of which was strangely distorted.

Mr. Shuckard exhibited a specimen of Macropis labiata, a genus of bees recently described by M. L. Dufour in the 'Annales de la Société Entomologique de France,' and which had been captured (for the first time in this country) by Mr. Walton in the New Forest, near Lyndhurst.

The following memoirs were read:—

Descriptions of new species of Cetoniidæ in the collection of the Rev. F. W. Hope, with observations on the genus Osmoderma. By Mr. W. Bainbridge.

After noticing the doubts which exist relative to the true locality of Osmoderma scabrum, and dividing that genus into two sections from the difference in the sculpturing of the elytra, the following species are described:—

Osmoderma Beauvoisii, *B.* Nigrum, clypeo convexo, thorace fortissime punctato seu varioloso lateribus subserratis, lineâ mediâ longitudinali parum impressâ; elytris thorace multo latioribus, striis fortiter insculptis; corpore subtus nigro. Long. corp. lin. 10. Inhabits Æquinoctial Africa.

Osmoderma scabrum, *H.* Cupreo-æneum seu bronzeum, clypeo valde reflexo postice foveato, thorace crebrissime punctulato sulco longitudinali lato fortiter impresso: elytris thorace parum latioribus striis rugoso-punctatis; corpore subtus bronzeo, punctulato. Long. corp. lin. 9. Inhabits North America. Mr. Doubleday.

Gnathocera nigrita, *B.* Nigra, clypeo quadrato, dente brevi utrinque armato, thorace hexagono varioloso, elytris antice scabris, postice lævioribus et tuberculatis, pedibus atro-piceis. Long. corp. lin. 9. Inhabits Sierra Leone. Mr. Strachan.

Gnathocera amabilis, *B.* Smaragdina nitida, pedibus roseo-opalinis, clypeo emarginato, antennis nigro-piceis, thorace trigono, lateribus marginatis, atropunctato. Long. corp. lin. 10. Inhabits Sierra Leone. Mr. Strachan.

Diplognatha holosericea, *B.* Nigra, thorace subtilissime punctulato, elytrisque striatis et punctatis; corpore infra nigro nitido, aureo-pubescente; abdomine lineâ mediâ longitudinali rubiâ impressâ. Long. corp. lin. 9½. Inhabits Sierra Leone. Mr. Strachan.

Diplognatha Rama, *H.* Rufescens, clypeo rotundato, thorace et elytris purpureo-variegatis; corpore subtus nigro, sterno rotundato rubro, pectore utrinque maculâ latâ rubrâ. Long. corp. lin. 8½. Inhabits Japan. Allied to Cet. Hebrææ, *Oliv.*

Diplognatha? pectoralis, *H.* Fusco-rubra, clypeo bidentato, pectore flavo-maculato, segmentis abdominalibus utrinque flavo notatis; pedibus piceis. [vi]. Long. corp. lin. 7½. Inhabits Sierra Leone. This species seems to unite Compsiura, *H.* with Diplognatha, *G.* and *P.*

Stripsipher ambiguus, *H.* Niger, aureo-pubescens; clypeo antice porrecto, thorace punctatissimo, lateribus angulatis, scutello magno punctulato; elytris lineis 4 elevatis aliâque abbreviatâ marginali. Long. corp. lin. 6½. Inhabits Sierra Leone. Lieut. Sayers.

Cetonia Withillii, *B.* Cuprea, thorace maculis duabus minutis discoidalibus albis; elytris flavo-maculatis, corpore infra roseo-cupreo maculato; pedibus cupreis. Long. corp. lin. 12½. Inhabits the East Indies. Col. Withill.

Cetonia Saundersii, *B.* Supra aurato-viridis nitida punctatissima albo-guttata, antennis tarsisque nigricantibus, elytris apice inermibus, abdomine utrinque albo-maculato. Long. corp. lin. 8. Inhabits the East Indies. W. W. Saunders, Esq. Allied to Cet. albo-guttata, *Vig.*

Amphistoros affinis, *B.* Nigra, thorace lineis tribus albis, elytris flavis ad apicem albo-punctatis, ano utrinque maculâ rotundatâ, corpore infra nigro-piceo, medio abdominis concolori, lateribus albo-maculatis. Long. corp. lin 7. Inhabits Sierra Leone. Allied to Cet. elata, *Fab.* and Amph. varians, *G.* and *P.*

Stethodesma, *H.* Forma Gymnetidis. Clypeus fissus. Thorax trigonus, postice disco protenso. Elytra gradatim e basi ad apicem attenuata, medio acuminata. Sternum valde prominens, antice porrectum. Tibiæ anticæ bispinosæ, 4 posticæ inermes.

Stethodesma Strachani, *H.* Nigricans rubro marginata, elytris atris postice albo-punctatis apiceque rubro, corpore infra rubro-piceo, segmentis abdominis serie duplici macularum. Long. corp. lin. 12½. Inhabits Sierra Leone. P. S. Strachan, Esq.

Observations on the Scolia fulva. By W. E. Shuckard, Esq.

A female of this species was figured from the collection of the Rev. F. W. Hope, in Griffith's 'Animal Kingdom,' in which a very short description was given of it with the erroneous locality of South America, the species being from New Holland. Mr. Hope having obtained the other sex, Mr. Shuckard gives a detailed description of the species, which belongs to the first section of the genus with three submarginal cells and two recurrent nerves. "It is very rare in coloured Scoliæ that the sexes are alike, but here we have a complete resemblance, except in structural details, peculiar to the sexes."

Observations on some Mummied Beetles. By the Rev. F. W. Hope.

The insects noticed in this communication were taken from the inside of a mummied Ibis by Sir Gardner Wilkinson, and belonged to two genera, Pimelia pilosa, *F.*, (Trachyderma pilosa, *Latr.*) and Akis reflexa, *Fab.*, both of which are met with in great abundance in Egypt at the present day. Several entire specimens of the former and the limbs of others, with sundry limbs of other insects, were obtained. A specimen [vii.] of Trachyderma pilosa is also attached to the case of an Egyptian mummy in the British Museum. Mr. Hope then enters into various arguments in proof of his opinion that the insects had been devoured whole by the Ibis (which feeds on serpents, insects, &c.), and that they had not been separately embalmed and then placed in the inside of the Ibis.

April 6th, 1840.—The Rev. F. W. Hope, President, in the Chair.

Professor Owen exhibited a Dipterous Larva, which had lived two days in urine after it had been discharged therewith by a patient; and stated that another specimen had been similarly discharged after an interval of five weeks. He observed, that although larvæ had repeatedly been obtained from the human subject, none had hitherto been noticed in the urinary discharge; he therefore considered this as a most remarkable case and most difficult to be accounted for, since although those larvæ which passed through the stomach might have been accidentally introduced into it in an ordinary manner, yet it was not to be supposed that these larvæ could have passed from the intestinal into the urinary canal.

Mr. Westwood stated that this larva was of a species and genus distinct from that described by the Rev. L. Jenyns in the 'Transactions of the Entomological Society,' discharged from the intestines of a patient; not being furnished with any of the lateral filaments which Mr. Jenyns had considered as branchiæ. Mr. Newport mentioned that Dr. Carter had communicated to him the case of the larva of an Œstrus discharged from the frontal sinus of a female; another female had likewise vomited a Geophilus.

Mr. Westwood exhibited the following insect monstrosities:—

Crœsus septentrionalis, one of the hind legs of which, although perfect, was considerably smaller than the other. From the collection of the Rev. W. Kirby, F.R.S.

Lucanus Cervus, the left mandible of which was short and recurved, as well as the palpi on that side. From Mr. Waterhouse's collection.

Vanessa Urticæ, the hind wing of which was furnished with an additional perfect wing of very small size, and

Vespa vulgaris, with the abdomen distorted. Both from Mr. Stephens's collection.

Carabus nitens, with one of the hind tarsi diminished in size, and

Aspilates gilvaria, with the two wings on the left side confluent. Both from his own collection.

A species of Clythra, the males of which had one of the mandibles singularly distorted (this might however be a specific character rather than an accidental monstrosity).

A Brazilian Prionus, one of the hind tarsi of which was tripled, the middle one of these three tarsi being minute.

Mr. Waterhouse also exhibited a Brazilian Prionus, in which the terminal joint of one of the antennæ was doubled. Mr. Stephens also stated that he possessed a specimen of Carabus intricatus, in which the 11th as well as the 10th joint of the antennæ [viii.] was implanted upon the 9th; and Mr. W. W. Saunders mentioned that he had captured a large Ichneumon, which wanted one of the posterior tibiæ and tarsi.

Mr. W. W. Saunders exhibited some mud-nests sent from Albania by Mr. S. S. Saunders, and which had been formed by a species of Pelopæus, which was thus proved to be a working and not a parasitic insect. Mr. Shuckard also mentioned, upon the authority of Mr. E. Doubleday, that the American species of this genus are well known as the fabricators of those mud-nests, and are thence called Mud-dabs.

Mr. W. W. Saunders also exhibited the larva of Cerambyx heros, which had completely eaten through a piece of timber, likewise exhibited.

May 4th, 1840.—The Rev. F. W. Hope, President, in the Chair.

Mr. Yarrell exhibited some larvæ of Tipula oleracea, which had proved very destructive to the grass in Golden Square, London. Mr. Hope stated that lime-water, as well as water from the gas manufactories, was very beneficial in destroying them.

Mr. Newport exhibited the specimen of Geophilus mentioned by him at the last meeting, and which was nearly two inches long. The same gentleman exhibited a specimen of the pupa of Sphinx Ligustri, the head-case of which he had repeatedly disturbed during its change from the larva to the pupa state, and in consequence of which, as it appeared to him, the tongue-case was not developed, so that the pupa resembled that of a Smerinthus instead of Sphinx.

Mr. Hope exhibited a new species of Phyllium from the Neilgherries, which he proposed to name P. Robertsonii after Mr. Robertson, who had presented a large collection of insects from that country to the Society at the last meeting.

Mr. Shuckard having read some extracts from his memoir on the family Dorylidæ, since published in the 'Annals of Natural History,' Mr. W. W. Saunders stated that one of his specimens of Dorylus orientalis had been captured in the sunshine, but that the other had entered a lighted room in the evening. Mr. Westwood also objected to several of the views entertained by Mr. Shuckard. (See his Memoir on Typhlopone, since published in the 'Annals of Natural History.')

Mr. Westwood also read some "Notes on African Entomology," amongst which the almost complete absence of Homopterous insects on that continent, and the general uniformity of the insects throughout the entire continent, and the resemblance of many of them to Indian forms, were especially dwelt upon. The Rev. F. W. Hope also entered into a detail of the reasons which had induced him to reject the plans which had been proposed for the geographical distribution of insects, and to consider the subject as primarily divisible according to the respective hemispheres. He however considered that the northern parts of America and of the old world formed but one entomo-geographical region, which he would call Boreal. The other parts of each hemisphere exhibit a secondary division. The entomology of Africa was well [ix.] characterized by its uniform character, although that of North Africa resembled that of South Europe, and that of South-East Africa that of Asia. Mr. Waterhouse also made a variety of observations on the same subject, considering the two hemispheres as primarily distinct.

June 1st, 1840.—The Rev. W. Kirby, M.A., F.R.S., Honorary President, in the Chair.

Mr. Samuel Stevens exhibited a new British genus of Carabideous Coleoptera allied to Pterostichus, captured by Mr. Leplastrier near Dover.

Mr. Ingpen, A.L.S., exhibited a mass of minute cylindrical cocoons arranged close together like a piece of honey-comb in miniature, being formed by a small species of Ichneumonidæ (Hemiteles—?), the upper end of many of which had an aperture, whilst in others the aperture was at the opposite end. They were found on the surface of the ground in his garden at Chelsea.

The Rev. F. W. Hope exhibited several new and rare Coleoptera and Diptera from New Holland.

Mr. W. W. Saunders exhibited the larva of a species of Oiketicus from the East Indies.

Mr. Frederick Smith exhibited the sexes of six species of Andrena, which he had observed in copulâ, thus proving the specific identity of the different sexes in these species of this troublesome genus; amongst them was Andrena fulva, which was proved to be the female of Andrena armata, and A. Clerckella.

Mr. Westwood exhibited a specimen of Myrmecocystus mexicanus, *Wesm.*, a species of ant, some of the neuters of which are of the ordinary form, whilst in others the abdomen is immensely swollen and globular: these latter individuals are described as never quitting the nest, and as making a kind of honey. He also observed upon the different kinds or degrees of development noticed among Hymenopterous insects, especially the several kinds of neuters of the hive-bees, called by Huber, &c., black-bees, nurser-bees, wax-workers, &c. Messrs. Waterhouse and Newport doubted however whether there were any real distinctions between these kinds of individuals, as they had never been able to discover any specimens according with such descriptions. Mr. Shuckard also stated his opinion that there was never more than one kind of neuter among the ants. Mr. F. Smith, on the contrary, stated that he had constantly found two kinds of neuters in the nest of the Formica sanguinea.

The following memoir was read:—

Description of a subgenus of Coleopterous insects closely allied to Carabus. By G. R. Waterhouse, Esq.

The insect here described agrees in the majority of its characters with Carabus, but differs in having the thorax smooth and convex, without reflected margins, and foveæ at the posterior angles, the antennæ incrassated in the middle, with the third joint long, the head large and nearly as broad as the thorax, the elytra depressed, and [x.] the legs long; although destitute of the velvet-like soles to the fore tarsi which distinguish the male Carabi, the anterior tarsi are not dilated. The name proposed for this insect is,

> Aplothorax Burchellii, *W.* Niger, thorace cordiformi, anticè et posticè truncato, angulisque anticis et posticis rotundatis, suprà lævi et convexo; elytris punctato-striatis, striis punctisque crebris at non profundis; inter strias 3 et 4 et 7 et 8 punctis majoribus cum illis striis confluentibus. Long. corp. lin. 15½. Inhabits St. Helena. W. Burchell, Esq. In Mus. D. Hope.

July 6th, 1840.—The Rev. F. W. Hope, President, in the Chair.

The President exhibited part of a splendid collection of Coleoptera received by him from Mexico.

Mr. Westwood exhibited portions of the branches of an apple tree bored into by the larva of Zeuzera Æsculi, communicated by Dr. Lindley.

Mr. Raddon exhibited a beautiful Lamia from the Gold Coast of Africa, as well as a species of Noctua and Cerura which he had obtained from Mr. Bradford, of Bewdley, and which he believed to be new to the British lists of insects. He also stated that Lamia textor had recently been taken at Walham Green.

Mr. Marshall stated that Mr. Doubleday had informed him that Sesia Bombyliiformis on emerging from the pupa has the transparent part of the wings entirely clothed with scales.

A paper was read by Mr. Westwood, consisting of suggestions for making collections of insects abroad, especially with reference to their physiological and economical peculiarities, which led to an extended discussion, in which Messrs. Hope, Waterhouse, Marshall, Raddon, and others, took part, and by whom the following suggestions were made.

In packing insects captured abroad, where there might not be convenience for pinning them, it is preferable to use thin layers of linen rag instead of cotton wool, the latter catching the ungues of the insects, and requiring very great care in unpacking. Sand in bottles is also objectionable, for if the bottles were not quite full, or any holes were accidentally made in the cork, whereby the sand partially escaped, the remainder by shaking about would damage the insects. Moss or bits of paper were also a good substitute for cotton wool. Camphor, or pepper as its substitute, should be placed in the bottles or boxes of dried insects. Such hard insects as beetles, &c., should be killed by being placed in a bottle and immersed in boiling water, which preserves their colours much better than by placing them in spirits. The leaves of laurel, or some other plant of the same nature, when bruised and placed in a box of insects, would also immediately kill them, but this process hardened the muscles. Lepidopterous insects may safely be preserved by folding their wings together, with the antennæ turned back between them, and then lapped up in a piece of paper folded flat in the shape of a triangle. Considerable collections had been received in this manner. The [xi.] spines of the Acacia were a good substitute for pins. Tin canisters should be used instead of wooden boxes where practicable, in order to prevent the attacks of the white ants and cockroaches: when filled, the tops should be resined down. Soda-water bottles were found to be of a much more commodious form than square spirit bottles. Rum and arrack, on account of their saccharine qualities, ought not to be used. It was also better to place layers of tow between the insects in spirits, and to put but few of the latter together, as when much shaken they easily broke to pieces.

August 3rd, 1840.—The Rev. F. W. Hope, President, in the Chair.

The President exhibited various new exotic Coleoptera, including a new species of Trochoideus and one of Chiasognathus, both from New Granada.

Mr. A. White exhibited several interesting insects from Santa Fé de Bogota, including new species of Labidus, Pelecinus, &c.

Mr. Westwood stated that he had recently observed a great number of the empty cocoons of the small garden ant sticking upon the leaves of a nectarine tree trained against a wall, at a considerable height from the ground, there being nests of the same species at the foot of the wall.

The following memoirs were read:—

Observations on the genus Typhlopone, and descriptions of several other genera of ants. By J. O. Westwood, F.L.S., since published in the 'Annals of Natural History.'

On a new species of Dynastes and other Coleoptera. By the Rev. F. W. Hope.

Dynastes Jupiter, *H.* Scutellatus, thoracis cornu medio maximo et incurvo subtus barbato, cornubus duobus lateralibus thoracis longitudine, rectis; thoracis dorso in cornu longissimo absque dente in medio producto, cornu capitis porrecto recurvo, dimidio antico suprà multidentato. Long. corp. unc. 4 lin. 10. Inhabits New Granada. Allied to D. Neptunus, *Sch.*

Hexaphyllum Westwoodii, *H.* Nigrum, antennarum clava brunnea, thorace profundi rugoso-sulcato, elytris carinatis interstitis reticulatis. Long. corp. lin. 6½. Inhabits New Granada.

Pelidnota Victorina, *H.* Flavo-viridis, thorace fusco-aurantio, suturâ scutelloque concoloribus; elytris pallidè viridibus maculis fusco-aurantiis aspersis, corpore subtus saturatiore, sterno trochanteribus geniculis tarsisque nigro-bronzeis. Long. corp. lin. 10. Inhabits Mexico.

Pelidnota Adelaida, *H.* Viridis, scutello aurato nitido, elytris fusco-bronzeis, lineis viridi-auratis alternantibus, colore bronzeo-ochraceo inquinatis. Long. corp. lin. 14. Inhabits Mexico.

Pelidnota auripes, *H.* Tota prasina, pedibus auratis. Long. corp. lin. 12. Inhabits Mexico.

A letter was read from Alexander Burn, Esq., dated Kaiva, Gujerat, December 6th, 1839, addressed to the President of the Entomological Society, accompanying a [xii.] box containing two Indian species of blister-flies which abound at Gujerat, and which he had found to be equal as vesicants to the Spanish fly: indeed, when used fresh, a Liquor Lyttæ of greater strength and activity can be obtained from them. The writer had called the attention of the Bombay Government to these insects as objects indigenous to India, which might be worthy of attention as articles of commerce. The first, Lytta gigas, *Fab.*, appears early in the season of the monsoon (August and September), creeping along the ground, seldom using its wings, and feeding on the young tender shoots of grasses. The other species, Mylabris pustulata, *Blbg.*, flies about all day and feeds on the flowers of various plants, especially the esculent Cucurbitaceæ and Hibiscus esculentus and cannabinus, abounding in some seasons to such an extent as to prove extremely destructive to the plants, hardly a single blossom escaping them. To the market gardeners they are therefore a great nuisance, and as the objection to destroy animal life is extremely rank in this part of India, the only plan adopted to get rid of them is picking them with the hand from the plants into large earthen vessels, and sending them to a distance of a mile or two to be set free in any wild or uncultivated spot.

In reference to the above letter, Mr. G. Newport stated that he had ascertained that Meloë Proscarabæus, the common English species, was highly diuretic, and it was suggested that as the two species of Indian Cantharidæ possessed very powerful medicinal properties, and were extremely abundant, it would be advisable that they should be collected in quantities and imported into England, so as to supersede the use of the common blister-fly.

September 7th, 1840.—Thomas Marshall, Esq., in the Chair.

In addition to the donations of entomological works, a collection of insects from New South Wales was presented to the Society by J. S. Bowerbank, Esq.

Mr. Smith exhibited specimens of Miscus campestris and Ammophila vulgaris, which had been taken *in copulâ*, and whence he was led to consider the former only as a variety of the latter species. He also exhibited a new British species of Nomada and various rare British Andrenæ.

Mr. Walton exhibited three new British species of the Curculionideous genus Magdalis.

October 5th, 1840.—J. Walton, Esq., V.P., in the Chair.

Mr. Sells exhibited a number of illustrations of the natural history of various species of insects, including nests of the Osmia cærulescens, numerous kinds of galls formed by Cecidomyiæ, &c., with their parasites; Chlorops pumilionis, in various states, the larvæ of which had proved very destructive this year near Kingston, and had entirely destroyed several acres of rye.

Mr. Westwood exhibited a remarkable gall brought from Manilla by Mr. Cuming, the outer covering of which consisted of exceedingly fine filaments, which crumbled to [xiii.] powder on being touched, and the inhabitant of which was a species of Cynips; also a cocoon made by a large Saturnia, the chrysalis of which was still inclosed and filled with eggs, although the antennæ-cases were so broad as to lead to the supposition that the specimen was a male.

Mr. Ingpen exhibited the cocoon of Cetonia aurata, the larva of which he had then recently found at the root of a tree, containing a living imago; likewise another mass of the cocoons of the Hemiteles sp.? found attached to a lilac branch.

Mr. Smith exhibited various species of British ants of the different sexes, showing the two distinct kinds of neuters of Formica sanguinea, in the nest of which he had also found Formica fusca, F. cunicularia and Myrmica rubra: also a piece of the stump of an oak tree burrowed into in all directions and inhabited by Formica rufa.

Mr. Stephens mentioned a remarkable instance of the occurrence of the autumnal disease of flies, having observed that a great number of the blades of a tall grass (Sesleria cærulea) growing at the sides of the path leading through Ongar Park Wood, in Essex, for about fifty yards were covered with hundreds of dead specimens of Cheilosia gracilis, many of which he exhibited still attached to the stems of the grass: he also observed one of the flies fly languidly down, settle on the grass and die.

Mr. Westwood exhibited drawings of the veins of the wings of various genera of British butterflies, commenting upon the modifications to which they are subject, and which he had found to afford a very satisfactory character for determining the limits of several of the genera, not only in these insects, but also among the Homoptera, in which order they had not hitherto been employed.

The commencement of a paper by J. O. Westwood, F.L.S., entitled 'Observations on the Linnæan species of Staphylinidæ,' was read.

In this memoir the author reviews the opinions which have been expressed by the various writers upon this family of beetles relative to the different species of rove-beetles described by Linnæus, and also, guided by the Linnæan Collection itself in the possession of the Linnæan Society, determines the modern genera to which the species respectively belong, and corrects their synonyms. The following is an abstract of the latter part of these observations:—

Sp. 1. Staphylinus hirtus is the Emus hirtus, *Leach.*

Sp. 2. St. murinus is Staphylinus (Trichoderma, *Steph.*) nebulosus, *Fabr.*, *Steph.*, &c.

Sp. 3. St. maxillosus. Under this name Linnæus united Creophilus maxillosus, *K.*, and Goerius olens, *Leach.*

Sp. 4. St. erythropterus is the St. erythropterus, *Fabr.* (cæsareus, *Cederh.* and *Erichs.*), not the St. castanopterus, *Grav.*

Sp. 5. St. politus. Several species confounded together, but the typical specimen is the Staph. æneus, *Grav.*, *Gyll.*

Sp. 6. St. rufus is Oxyporus rufus, *Fabr.*

Sp. 7. St. lunulatus is Bolitobius lunulatus of Panzer and Zetterstedt (B. atricapillus, *Fabr.*, &c.).

Sp. 8. St. riparius is Pæderus riparius, *Fab.*

[xiv.] Sp. 9. St. obtusus is a Tachyporus specifically identical with T. analis, *Fab.*, which is a variety of it.

Sp. 10. St. lignorum is a Tachinus of the size of T. subterraneus.

Sp. 11. St. Silphoides is identical with Tachinus suturalis, *Grav.*

Sp. 12. St. subterraneus is Tachinus subterraneus, *Grav.*

Sp. 13. St. flavescens. No specimen of this doubtful species exists in the Linnæan cabinet.

Sp. 14. St. elongatus is identical with Lathrobium elongatum, *Erichs.*

Sp. 15. St. biguttatus is a small Stenus.

Sp. 16. St. bipustulatus. No specimen of this evident species of Stenus exists in the Linnæan cabinet.

Sp. 17. St. cantharellus. Ditto. Probably a Malthinus.

Sp. 18. St. littoreus is identical with Oxyporus (Conurus, *Steph.*) collaris, *Fab.*

Sp. 19. St. sanguineus is an Aleochara closely allied to A. fuscipes.

Sp. 20. St. caraboides is Lesteva caraboides, *Grav.* (testaceus, *Bdv.* and *Lacord.*)

Sp. 21. St. chrysomelinus is Tachyporus chrysomelinus, *Auct.*

Sp. 22. St. flavipes is Tachyporus hypnorum, *Fab.*

Sp. 23. St. fuscipes is identical with Gyrohypnus lentus, *Grav.*

Sp. 24. St. rufipes is identical with Tachinus pullus, *Grav.*

Sp. 25. St. piceus is Oxytelus piceus, *Gyll.*
Sp. 26. St. boleti is Gyrophæna minima, *Erichs.*

November 2nd, 1840.—J. Walton, Esq., V.P., in the Chair.

Mr. Westwood gave an account of several recent observations made by him relative to the development of the Myriapoda, exhibiting specimens and drawings of some minute individuals of Lithobius forcipatus, which differed from each other in the number of limbs, one having only eight pairs of feet, another ten, another eleven, whilst one, which was a quarter of an inch long, had gained fifteen pairs. In the former individuals there were several pairs of extremely minute appendages arising at the sides of the rudimental terminal segments of the body; but in the last-mentioned specimen the terminal segment and the long hind pair of feet were fully developed. He also exhibited a full-grown Lithobius, one of the penultimate legs of which was very short, and which he considered was the result of an arrest of development and not the reproduction of the limb. He would also explain in the same manner the cause of the minute size of one of the feet of several specimens of Scolopendra which had been exhibited at former meetings of the Society, in all which it was one or other of the hind feet which was of a diminished size. He also exhibited a small slender white wingless insect, one-sixth of an inch long, captured running on the ground, possessing six feet and two very long anal filaments, thus resembling the larva of a Staphylinus, but having multiarticulate antennæ, and broad 4-dentate mandibles; the abdominal segments were also furnished at the sides beneath with very minute short filaments. [xv.] Hence, as this insect would not accord with the larvæ of any known group of insects, he deemed it possible that it might constitute a new genus of Myriapoda in an undeveloped state.

The following memoirs were read :—

Notice of a simple method of Entrapping and Destroying Wasps. By the Rev. F. W. Hope. This plan, which is very serviceable in protecting wall-fruit, consists in placing pieces of the fruit or bits of meat under a hand glass raised an inch or two above the ground, having one of the top panes taken out or a small hole made at top, with another hand glass placed on the top of the lower one; the insects, after being attracted to the food, fly upwards into the upper glass, and are easily destroyed by introducing a few lighted matches into the upper glass. This plan is mentioned by Mr. Ingpen in his instructions for collecting, and Mr. Marshall stated that he had also known it used for collecting nocturnal Lepidoptera, a light being used under the glass to entrap the moths. Mr. Bainbridge also mentioned that by hanging dead birds or pieces of flesh in front of wall-fruit trees, the fruit would be left untouched.

The continuation of Mr. Westwood's memoir on the Linnæan Staphylinidæ was also read.

December 7th, 1840.—The Rev. F. W. Hope, President, in the Chair.

Mr. Evans exhibited a specimen of Paussus Burmeisteri, and a new species of Chiron, which he had recently received from South Africa.

Dr. Calvert presented some living larvæ of one of the species of Noctuidæ, which he had found exceedingly destructive to his wheat crops in the north of Yorkshire, the larvæ ascending the stems and devouring the grain at the end of September. The land upon which the crops attacked were sown was reclaimed moor land, and it was considered that it was owing to the lateness of the ripening of the crop that it was subject to these attacks, earlier crops in more southern parts of the country escaping. It was further suggested that it would be desirable to plough up the soil several times to a considerable depth, whereby the larvæ or chrysalides in the winter or spring would become exposed, and would be greedily devoured either by the rooks or by ducks, which might be turned into the fields for that purpose.

The following memoirs were read:

Observations on the Migrations of certain Butterflies in British Guiana. By Robert Schomburgh, Esq., Corr. Memb. E.S., &c.

In this memoir the author notices that several species of Callidryas are often observed in the months of September and October, settling in prodigious numbers on the wet sand-banks, and which, when alarmed, presented a brilliant spectacle in the display of the different shades from deep orange to the palest sulphur colours. The Indians, when they observed a number hovering over a particular spot, said that they were come to celebrate a marriage dance, whilst such as were settled with their long spiral [xvi.] tongues unrolled, and resting on the moist sand-bank, were compared to paiwori drinkers. On the morning of the 10th October, 1838, while ascending the river Essequibo, he observed myriads of these butterflies coming from the south-west and flying to the north-east, always crossing the river in that direction, flying over the tops of the forest trees, but descending nearly to the surface of the river when they had to cross it. The distance which the boat had travelled during the day was nine miles, and the butterflies continued an uninterrupted column from 8 o'clock A. M. till half-past 5 P. M., so that their numbers must have been incredible. It was supposed that they came from the extensive savannahs along the Pacaraima mountains, and were flying toward those which extend between the Rivers Berbice and Corentyn. The Accawai Indians at the upper river Demerara sometimes collect large numbers of caterpillars, which they use as food; indeed, their numbers are so great that whole baskets-full are gathered, after which they are roasted and mixed with the flour prepared from the root of the cassava (*Jatropha Manihot*), and baked into cakes; the caterpillars are also sometimes mixed with turtle eggs, which constitutes a great delicacy. The Accawai Indians in Mr. Schomburgh's company asserted that the butterflies then seen deposited their eggs on the plants from which the caterpillars used as food are collected.

Mr. Gould also stated that he had observed a species of caterpillar in vast profusion in the interior of New South Wales, distinct from the bugong, upon which the natives fed, and which was also devoured by a species of hawk and the ibis.

There was also read a memoir by J. O. Westwood, F.L.S., consisting of descriptions of the following exotic Hymenopterous insects belonging to the family Sphegidæ:—

TRIROGMA, *W.* Antennæ ♂ ferè corporis longitudine, filiformes. Caput tuberculo frontali. Mandibulæ mediocres dente interno latissimo. Labrum minimum. Metathorax utrinque angulariter productus. Abdomen 3-annulatum, ♂. Tarsi simplices. Ungues bifidi. *Dolichuro* affinis.

TRIROGMA CÆRULEA, *W.* Tota cærulea, punctata, griseo-villosa, antennis tibiis tarsisque nigris, alis hyalinis. Expans. alar. lin. 9½. Inhabits Northern India. Mus. W. W. Saunders, F.L.S.

APHELOTOMA, *W.* Caput latum, anticè parùm productum. Mandibulæ crassæ dente interno acuto. Thorax anticè et posticè valdè attenuatus. Alæ breves. Cellula marginalis 1, haud appendiculata; 4 submarginales, 1ma appendiculata. Pedes inermes. Tarsi simplices ♀. *Ampulici* affinis.

APHELOTOMA TASMANICA, *W.* Nigra, pedibus rufis, alis fuscis, anticis fasciâ mediâ albâ. Expans. alar. lin. 6. Inhabits Van Diemen's Land. D. Ewing. Mus. Westwood.

CHLORION (*Latr.* AMPULEX, *Jur.*) CYANIPES, *W.* Nigro-cærulea, rudè punctata, mesothoracis dorso in medio haud longitudinaliter impresso, pedibus cyaneis, alis fuscescenti-hyalinis, nubilâ subapicali obscuriori. Expans. alar. lin. 5½. Inhabits the Cape of Good Hope. Mus. Westwood.

[xvii.] January 4th, 1841.—The Rev. F. W. HOPE, F.R.S., President, in the Chair.

The President stated, in reference to Mr. Schomburgh's memoir, read at a previous meeting, that migrations of butterflies to a very great extent had been repeatedly observed in South America, instances of which had been recorded in Helme's account of Buenos Ayres.

Mr. Westwood corrected an error which had occurred in the printing of a memoir relative to the Pediculus Melittæ of Kirby, or the larva of Meloë, in the 'Transactions' of the Society, in which it had been stated that the specimens which he had found at large and dissected were identical with some reared by the Rev. L. Jenyns from the *larvæ* of the Meloë, whereas the latter had been reared from the *eggs* of that insect. This correction was especially required, because in the volume upon insects in the 'Cabinet Cyclopædia' it had been suggested by Mr. Shuckard that the two insects were not identical.

A memoir was read by Mr. Westwood on the nomenclature of the genus Chlorion of Latreille (Ampulex, *Jurine*). From a review of Latreille's various works it appears that although at the first he gave the Sphex lobata, *Fabr.*, as the type of the genus, yet its characters were not derived from that insect, but agree with the Sphex compressa, *Fabr.* Fabricius, however, adopted and characterized the genus Chlorion from the former of these two species, but included in it also Sphex compressa. Jurine, therefore, finding the latter species not to agree generically with the former, proposed the name of Ampulex for the Sphex compressa, and figured an European species as an example, which, however, does not precisely agree with S. compressa. Under these circumstances the author considers that the name of Chlorion ought to be applied to the genus typified by Sphex compressa, that the Chlorion of Fabricius requires another name, and that the name Ampulex is strictly synonymous with Chlorion, the same species being the true type of both generic names. In allusion to the employment of synonymical names of genera, Mr. Yarrell stated that a calculation had been made by Messrs. Agassiz and De Candolle, by which it appeared that no less than 300 generic names of plants and 800 names of zoological genera required changing, having been previously used in other branches, and it was insisted upon by several members that the inconvenience which would necessarily result from the change in such a number of names would far overbalance the occasional slight inconveniences at present felt in cases of such "double emploies," as the French term them. It was further suggested by Mr. Waterhouse, that as Latreille had erred in the first instance in giving as the type of Chlorion an insect which did not accord with the generic characters which he had detailed, we ought to adopt the nomenclature of Fabricius, who had given the real characters of the insect which Latreille had erroneously mentioned as the typical species of *his* genus Chlorion.

[xviii.] Anniversary Meeting, January 25th, 1841.—The Rev. F. W. HOPE, President, in the Chair.

At this Meeting the ordinary business of the Annual Meeting took place. W. Sells, G. R. Waterhouse, S. Stevens and W. Bennett, Esqrs., were elected into the Council in the room of E. Charlesworth, W. E. Shuckard, J. F. Stephens and F. Walker, Esqrs.; and W. W. Saunders, Esq., F.L.S., was elected President, W. Yarrell, Esq., Treasurer, and J. O. Westwood, Secretary, for the ensuing year.

In the address delivered by the Rev. F. W. Hope, after favourably commenting upon the character of the Society's 'Transactions,' he suggested the propriety of members taking up the old theses of Linnæus and bringing down the subjects therein treated upon to the present state of the science. The injurious effects of insects upon agricultural and horticultural productions ought also to engage the attention of the members. He would also recommend the formation of committees, taking up and annually reporting upon the entomology of the various geographical districts; and he alluded to the great loss the Society and Science had sustained by the deaths of Dr. Goodall, Mr. Vigors and Major Gyllenhal.

It was announced that the caterpillar of one of the Noctuidæ which devours the roots of turnips should be again proposed as the subject of the essay for the prize of ten guineas, offered by the Society in conjunction with the Saffron Walden Agricultural Society.

The Rev. F. W. Hope also announced his intention of giving a prize of £10 for the best essay on the insects which attack apple and pear trees, with the best remedy for their destruction.

February 1st, 1841.—G. R. WATERHOUSE, Esq., V.P., in the Chair.

The Secretary called the attention of the Meeting to the condition in which the fine painting of the Raising of Lazarus, by Sebastian del Piombo, in the National Gallery, was stated by Professor Waagen to be at the present time; the picture having been transferred to canvass, on which it was affixed with *paste*, which material was now attacked by insects, regarded by Mr. Westwood as the Anobium paniecum, which is well known to attack preparations of flour, such as wafers, &c. The plans suggested at a former meeting for the destruction of insects which attack paintings on panel or the stretching-frames would be inapplicable to the present case, and it would be very dangerous to saturate the back of the picture with any solution which would affect the paste so as to render it unpalatable to the insects, or to destroy them. Mr. Gutch considered that in the case of so valuable a picture as this is, it would be most advisable to re-line the picture with fresh canvass, employing paste in which a little corrosive sublimate had been mixed; he had constantly used that material, and had always found it perfectly effectual in preventing the attacks of insects. Mr. Waterhouse, however, strongly objected to the use of corrosive sublimate, and suggested that an air-tight frame or flat box should be placed behind the entire picture, a space of
[xix.] about an inch being left between the picture and the frame-work; and that the inclosed air should be strongly impregnated with prussic acid, which he had no doubt would destroy the insects.

A letter from the Rev. A. W. Griesbach to the Secretary was read, relative to the Economy of the Pea-beetle (*Bruchus granarius*), which he had found to undergo its transformations within the pea, and not in the earth, as had been stated by Mr. Westwood in an article in the 'Gardener's Magazine.' Mr. Westwood stated that he had himself had several previous opportunities of discovering the error, having received a quantity of peas and other leguminous seeds from Mr. Loudon and Dr. Lindley, some of which contained Bruchi in the perfect state.

The completion of a memoir on the Evaniidæ and some allied genera of Hymenopterous insects, by J. O. Westwood, F.L.S., was read.

In this extended memoir, partly read in 1836, the author, after tracing the characters and relations of the family Evaniidæ, and noticing the views entertained respecting it by various authors, gives a detailed account (illustrated with numerous figures of the typical species and the generical details) of each of the genera of which it is composed, as well as of some others of anomalous character allied thereto, adding under each genus a complete synopsis of all the known species, including also numerous new ones.

In Evania (including Brachygaster, *Leach*, Hyptia, *Ill.*) he introduces twenty-four species, amongst which the following are new:—

EVANIA PRINCEPS. Nigra, facie argenteo-sericea longitudinaliter striata, thorace et petiolo rudè punctatis, alarum anticarum fuscarum vena radiali ad apicem recurva, furca metasterni brevissima. Long. corp. lin. 7.—New Holland.

EVANIA ABYSSINICA. Rufa, thorace et petiolo abdominali rufis, pedibus piceis, facie punctata, mandibulis nigris, apice piceis, femoribus 4 anticis subtus rufis. Long. corp. lin. 3¾.—Abyssinia.

EVANIA TASMANICA. Nigra, capite thoraceque punctatissimis, facie tenuiter longitudinaliter striata, furca metasterni brevi recta, petiolo striato, alis hyalinis. Long. corp. lin. 4½.—Van Diemen's Land.

EVANIA JAVANICA. Tota nigra punctata, petiolo brevi, obliquè striato, facie rugosa, alarum venis cubitali et discoidali obliteratis. Long. corp. lin. 3.—Java.

EVANIA (BRACHYGASTER) BICOLOR. Ferruginea, abdomine piceo, antennis pedibusque nigris, capite piceo, vertice rufescente. Long. corp. lin. 2½.—Brit. Mus.

In Pelecinus a full description of the male is given for the first time, and nine species noticed, most of which are described by Dr. Klug in the last number of Germar's 'Zeitschrift.'

MONOMACHUS, *Klug*, n. g. Caput crassum, genis plus minusve dilatatis; mandibulæ intus 1-dentatæ; antennæ ♂ 14-articulatæ, ♀ 15-articulatæ, articulis [xx.] apicalibus sensim crassioribus; alæ anticæ area unica marginali, duabus submarginalibus; abdomen ♂ clavatum, ♀ valde elongatum, curvatum, in medio subinflatum; oviductus occultus.

Seven species, all inhabitants of Brazil, including the following.

MONOMACHUS KLUGII. Ferrugineus, abdomine piceo-nigro, pedunculo ferrugineo, alis pallidis cum macula fusca terminali, genis valde dilatatis, antennis fuscis, pedibus rufescentibus. Long. corp. lin. 10½.—Brazil.

MONOMACHUS LATERALIS, *Klug, ined.* Niger, mandibulis luteo-fuscis, pedibus 4 anticis luteo-fuscis, coxis albidis, femoribus in medio obscurioribus, pedibus 2 posticis nigro-fuscis, abdomine luteo-marginato, alis hyalinis immaculatis ♂. Long. corp. lin. 5½.—Brazil.

MONOMACHUS SEGMENTATOR. Obscure flavescens, vertice fusco-vario, collare macula sublunata fusca, mesothorace fusco, metathorace nigro, punctato, pedunculo flavido, segmentis reliquis abdominis piceis, flavido-marginatis, abdomine setis tribus minutis terminato, corpore subtus flavido, pedibus posticis fuscis, antennis corpore longioribus ♂. Long. corp. lin. 4.—Brit. Mus.

The genus Fœnus, *Fabr.*, contains sixteen species, of which the following are described as new:—

Fœnus Esenbeckii. Piceo-rufus, mesothoracis tergo rugosulo, antennis rufis, articulo 3tio fusco, alis lutescenti-hyalinis, areola minuta, discoidali, subconica. Syn. F. affectator, var. β, *Esenbeck.*—Germany.

Fœnus Guildingii. Gracilis, niger, thoracis et abdominis lateribus rufescentibus, oviductu fere corporis longitudine, vaginis et terebra apice albidis, tibiis et tarsis 4 anticis albis ♂ ♀. Long. corp. lin. 5½.—Island of St. Vincent.

Fœnus dorsalis. Ferrugineus, capite suprà medio mesonoti scutelloque nigris, abdomine piceo, segmentis apice rufescentibus, pedibus piceo-rufis, femoribus tibiisque 4 anticis in medio nigris ♀.—Brit. Mus.

Fœnus terminalis. Niger, thorace lævi, opaco, lateribus rufo-piceis, tibiis 4 anticis albis, linea interna nigra, posticis nigris, clavatis, annulo basali albo, tarsis albis apice fuscis, oviductu longitudine corporis, vaginis apice latè albis ♀. Long. corp. lin. 9¾.—New Holland.

Fœnus unguiculatus. Niger, rufo-piceo-varius, areola minuta discoidali obliterata, unguibus tarsorum maximis (in pedibus posticis dimidium tarsorum longitudine æquantibus ♂). Long. corp. lin. 5½.—New Holland.

Fœnus Darwinii. Piceo-niger rufo-varius, pedibus rufo-fulvis, areola discoidali magna ♂. Long. corp. lin. 3.—New Holland.

Fœnus rufus. Totus rufus, capite thoraceque punctatis, alarum areola discoidali mediocri ♂. Long. corp. lin. 5½.—West Australia.

[xxi.] In the genus Aulacus of Jurine (of which the male as well as the mouth organs are described in detail), fifteen species are introduced, including the following as new:—

Aulacus obscuripennis. Niger, capite lævissimo, thorace anticè irregulariter striato, posticè rugoso, abdomine medio rufo, alis hyalinis, nubila parva media, fascia substigmaticali apiceque tenui fuscis ♀. Long. corp. lin. 5¾.—Poland.

Aulacus Erichsonii. Gracilis, niger, antennarum articulo 1mo subtus fulvo, petiolo nigro, abdominis dimidio basali rufo, fascia tenui transversa nigra, apice nigro, coxis nigris, pedibus 4 anticis flavido-rufescentibus, femoribus 2 posticis fuscis, tibiis obscuris, apice rufescentibus, tarsis omnibus albidis, alis nubila substigmaticali apiceque parùm fuscis ♂. Long. corp. lin. 5½.—Near Berlin.

Aulacus thoracicus, *Klug, ined.* Niger, collari et mesothoracis dorso sanguineo, striato, alarum costa, areola marginali et 1ma submarginali fuscis ♂ ♀. Long. corp. lin. 5.—Cape of Good Hope.

Aulacus Stephanoides. Niger, capite et antennarum articulo basali luteis, abdomine elongato gracili, oviductu abdomine duplò longiore, terebra rufa, vaginis nigris apice albis, alis apice parùm fuscis ♀. Long. corp. lin. 7.—Brazil.

Aulacus hyalinipennis. Niger, facie et articulo 1mo antennarum fulvis, alis hyalinis, stigmate nigro, apice fusco, pedibus 4 anticis fulvis, femoribus posticis fuscis, tibiis rufescentibus, tarsis fulvis ♂. Long. corp. lin. 5.—Mexico.

Aulacus ater. Totus ater, alis pallidè fuscescentibus, areola externo-media plaga parva postica, alteraque minuta cum stigmate connexa fuscis ♀. Long. corp. lin. 7.—Nova Scotia and North America.

Aulacus Abbottii. Niger, abdomine versus basin rufo, pedibus rufis, alis striga parva versus basin maculaque pone stigmata fuscis ♀. Long. corp. lin. 7.—Georgia.

Aulacus rufus. Rufus, antennis (basi excepto) et abdominis basi nigris, alarum apice fusco. Long. corp. lin. 8½—Van Diemen's Land.

Aulacus cingulatus. Rufus, antennis piceis, articulo 7mo albo ♀. Long. corp. lin. 5¾.—Swan River, New Holland.

Aulacus apicalis. Rufus, capite abdomineque nigris, hoc lunula versus basin flavescente, alarum apice lato nigro ♀. Long corp. lin. 5.—New Holland.

A detailed description is then given of the genera Megalyra, *W.*, composed of one Australian already described species (M. fasciipennis) and Trigonalys, both of which, as well as Stephanus, are shown to offer a more intimate relation to the preceding genera than to any other family of Hymenopterous insects.

Trigonalys, *W.* (Proceedings of the Zool. Soc. 1835[*]), is composed of the five following species :—

[xxii.] Trigonalys melanoleuca, *W.* (op. cit.).

Trigonalys obscura. Nigra, obscura, capite plano, nitido, abdominis segmento 1mo margine postico luteo, alis obscurè fuscis. Long. corp. lin. 7.—Surinam.

Trigonalys Servillei. Nigra, parte postica thoracis et abdominis basi pallidè luteis, alis immaculatis hyalinis.

Trigonalys Lepriegurii (Seminota Lep., *Spinola*).

Trigonalys Hahnii, *Spin.* (Tr. anglicana, *Shk.*).

The genus Stephanus of Jurine comprises nine species, of which the following are new:—

Stephanus bicolor. Piceo-niger, capite thoraceque rufis, rugosis, oviductu fascia lata alba subapicali, tarsis posticis brevissimis, crassis, ferrugineis ♀. Long. corp. lin. 9.—Georgia.

Stephanus Indicus. Niger, gracillimus, antennis basi rufis, facie flavo-lineata, tibiis tarsisque basi albidis, petiolo longissimo, alarum venis discoidalibus obsoletis ♂. Long. corp. lin. 6½. ♀ capite rufo.—Malabar.

Mr. Waterhouse exhibited and read detailed descsiptions of two new Lamellicorn beetles, brought from the Philippine Islands by H. Cuming, Esq. The first is allied to Scar. longimanus, but being a female it does not exhibit the elongated fore-legs from which that species derives its name.

Euchirus, applied by Kirby (Introd. to Ent. vol. iv., Index Coleopt.), was, I believe, the first name given to this group. M. Laporte applies the name Porropus. Cheirotonus, *Hope*, and Propomacrus, *Newm.*, are decidedly closely allied to the present insect.

Euchirus quadrilineatus, *Waterh.* Obscurè nigro-æneus; thorace punctulato, elytris lævibus, lineis quatuor fusco-flavescentibus ornatis, corpore subtus pilis fuscis instructo. Long. corp. 2 unc. 5 lin.; lat. 1 unc. 2½ lin.

Xylotrupes pubescens, *Waterh.* Nigrescenti-fuscus, supra et infra pilis decumbentibus vestitus, capite cornu ad apicem bifido, paullo recurvo, thoraceque anticè in cornu robusto et elongato antrorsum ducto, ad apicem bifido, armatis. Long. corp. 1 unc. 9 lin.; lat. 11 lin. Allied to S. Gideon and Oromedon.

March 1st, 1841.—W. W. Saunders, Esq., F.L.S., President, in the Chair.

Mr. Parry exhibited a variety of new Coleoptera, especially several fine Cetoniidæ, from New Holland.

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[*] I consider Lycogaster pullatus, *Shk.*, to be the male of another species of Trigonalys.—J. O. W.

Mr. Westwood exhibited dried specimens of a Chinese larva, from the back of the neck of each of which a slender fungus, twice as long as the body of the insect, had been produced. This insect, when thus attacked, is esteemed of great efficacy as a drug in China, where, from its very great rarity, it is only used by the emperor's physicians; and an extract from Du Halde's 'History of China' was read, in which its virtues are elaborately detailed, being especially serviceable in cases of bodily debility, particularly [xxiii.] when a small portion of it is boiled in the body of a duck. The Chinese philosophers consider it as a herb during the summer season, but as soon as winter appears it changes into a worm. It is named Hia Tsao Tong Tchong in Du Halde's Gen. Hist. of China done into English, 8vo, 1736, 4 vols., vol. iv. p. 41—42; the first two names meaning summer-herb, and the last two winter-worm. In 'Rees's Cyclopædia' it is called Hiastaotomtchom; but its proper name (according to Mr. Reeves, who had forwarded a number of specimens to the Linnæan Society from Canton) is Hea Tsaon Taong Chung. It is brought to Canton tied up in small bundles, each containing about a dozen individuals, and where it is better known under the name of Ting Ching Hea Tsam, which seems but a transposition of the former name. The parasitic plant (which is analogous to that which infests the larvæ sent from New Zealand, of which notices have been brought before the Society on former occasions) is the Clavaria Entomorhiza.

Mr. Westwood also exhibited two remarkable moths from Assam, collected by Mr. Griffith, and forming part of Mr. R. H. Solly's collection, which had all the appearance of black species of the genus Papilio, with red spots (Epicopeia Polydora and Philenora, *W.*, in Arcana Entomol., No. 2, pl. 5.).

A letter was read from Dr. Cantor, addressed to the Rev. F. W. Hope, from Singapore, dated May 21, 1840, giving an account of his proceedings and travels.

A communication was read from the Rev. F. W. Hope, relative to the formation of committees for undertaking the investigation of the Entomology of various regions of the globe; but as he was not present the consideration thereof was deferred until his return to England.

A letter was read, announcing that the next meeting of the Italian naturalists would be held at Florence.

The completion of Mr. Westwood's memoir on the Linnæan Staphylinidæ was read.

A memoir was also read, containing descriptions of the species of the Curculionideous genus Pachyrhynchus, *Sch.*, collected by H. Cuming, Esq., in the Philippine Islands. By G. R. Waterhouse, Esq., V.P.E.S.

Sp. 1. Pachyrhynchus venustus, *W.* Niger, lævis; capite maculâ unicâ inter oculos, thorace maculis duabus suprà, maculâque unâ ad utrumque marginem, elytris viginti-duabus ovatis ornatis; his a squamis auratis, vel aureo-cupreis, effectis.

Var. β. differt elytris maculis octodecim ornatis.

Var. γ. differt elytris maculis sexdecim ornatis. Long. corp. lin. 10½;—7¾.

Sp. 2. Pachyrhynchus gemmatus, *W.* Niger vel cupreus, lævis; capite suprà maculis duabus, thorace suprà tribus, infrà duabus, et elytris sexdecim (duabus apud suturam) ornatis; his maculis a congerie squamarum metallicè splendentium [xxiv.] effectis; squamis centralibus nitidè viridibus, circumgyrantibus aureo-rubris, et indè ocellos efficientibus.

Var. β. differt elytris maculis viginti-duabus ornatis.

Sp. 3. Pachyrhynchus perpulcher, *W.* Niger, lævis; thorace maculis (subocellatis) suprà quatuor, subtùs duabus, elytris octodecim ornatis; his a squamis metallicè viridibus et cupreis effectis.

Sp. 4. Pachyrhynchus Cumingii, *W.* Splendidè cupreus; elytris levitèr punctato-striatis; rostro notâ transversâ basali, capite maculis oblongis tribus, harum unâ interoculari, unâ utrinque suboculari; thorace lineis marginalibus, et suprà lineis tribus, et unâ transversâ interruptâ, notato; elytris lineâ marginali, lineisque duabus longitudinalibus dorsalibus, necnon lineâ transversâ per medium excurrente, atque lineis duabus abbreviatis et ad angulos basales et ad subapicales; his lineis maculisque pallidè cyaneo-viridibus. Long. corp. lin. 6¾.

Sp. 5. Pachyrhynchus speciosus, *W.* Splendidé cupreus, vel niger; elytris punctato-striatis; capite lineis tribus longitudinalibus notatis; thorace annulis tribus elongato-ovalis; elytro utroque fasciis duabus transversis humeralibus ad marginem elytrorum externum confluentibus et prope suturam; duabus centralibus et ad suturam et ad marginem externum ductis necnon confluentibus; et lineâ aream semilunarem circumdante apicali, ornato.

Sp. 6. Pachyrhynchus decussatus, *W.* Ater, lineâ transversâ apud thoracis medium et pone hanc lineis tribus longitudinalibus, necnon margine externo aureo-viridibus; elytris, lineâ centrali transversâ, lineis quatuor ad basin longitudinalibus, et pone transversam, lineis duabus longitudinalibus, his lineam parvulam incurvam lateralem emittentibus; lineis omnibus sic et marginibus elytrorum splendidè aureo-viridibus. Long. corp. lin. 7½.

Sp. 7. Pachyrhynchus phaleratus, *W.* Ater, lineâ transversâ apud thoracem medium, ad utrumque latus in duos ramulos divisâ spatium inæquale circumdantes; pone transversam, lineâ centrali longitudinali; elytris lineâ mediâ transversâ, lineis duabus ad basin longitudinalibus, et pone transversam tribus longitudinalibus; his sic et marginibus externis et basalibus, aureo-viridibus. Long. corp. lin. 7¾.

Sp. 8. Pachyrhynchus Schœnherri, *W.* Splendidè cupreus; capite maculis tribus, earum unâ interoculari, unâ utrinque suboculari; thorace nitido, dorso binotato, ad latera lineis duabus; elytris octodecim punctis (duobus apud suturam) ornatis; his notis, lineis maculisque pallidè viridibus. Long. corp. lin. 5½.

Sp. 9. Pachyrhynchus Erichsoni, *W.* Æneus; capite maculis tribus, earum unâ interoculari, unâ utrinque suboculari; thoracis dorso binotato, lateribus bimaculatis; elytris maculis sexdecim ornatis; maculis omnibus colore flavo. Long. corp. lin. 6.

Sp. 10. Pachyrhynchus Eschscholtzii, *W.* Ater, nitore violaceo; thorace maculis duabus; elytris maculis quatuor rotundatis ad basin; sex ad medium, [xxv.] sex prope apicem, duabusque ad apicem, albescentibus.

Sp. 11. Pachyrhynchus striatus, *W.* Ater; elytris profundè punctato-striatis; capite maculâ inter oculos; thorace suprà trimaculato; elytris duodecim maculatis; maculis aureis; illis elytrorum ad basin quatuor, et ad apicem quatuor elongatis, ad medium quatuor, scilicet duabus externis rotundatis, et duabus dorsalibus transversis. Long. corp. lin. 6.

Sp. 12. Pachyrhynchus roseomaculatus, *W.* Niger; elytris distinctè punctato-striatis; capite maculâ inter oculos; thorace suprà trimaculato; elytris undecim maculatis; his maculis roseis; plerisque oblongis; maculâ unâ suturali obcordatâ. Long. corp. lin. 6½.

Sp. 13. PACHYRHYNCHUS JUGIFER, *W.* Ater; capite maculâ viridi inter oculos, et alterâ utrinque sub oculos; thorace medio lineâ transversâ, et pone hanc lineâ longitudinali a transversâ usque ad marginem posticum thoracis excurrente, his e squamis purpureo-aureis effectis, quibus latera quoque thoracis obtecta sunt; elytris squamis purpureo-aureis indutis, areá majusculâ rotundatâ prope scutellum, et fasciâ transversâ in medio elytrorum, ad latera et ad suturam dilatatâ, necnon lineâ per suturam a fasciâ transversâ ad notam apicalem currente, his notis denudatis.

Sp. 14. PACHYRHYNCHUS RETICULATUS, *W.* Niger; capite lineis tribus longitudinalibus notatis; thorace elytrisque lineis splendidè viridibus vel cupreis areas polygonas circumdantibus reticulatè ornatis.

Sp. 15. PACHYRHYNCHUS MULTIPUNCTATUS, *W.* Ater; capite maculis tribus, earum unâ interoculari, unâ utrinque suboculari; thorace nitido, dorso binotato, ad latera lineis duabus; elytris punctis plurimis ornatis; his lineis punctisque viridibus.

Sp. 16. PACHYRHYNCHUS INORNATUS, *W.* Ater; elytris levitèr punctato-striatis.

Sp. 17. PACHYRHYNCHUS MONILIFERUS, *Esch.*

Sp. 18. PACHYRHYNCHUS CHLOROLINEATUS, *W.* Ater; thorace medio lineâ transversâ, et pone hanc lineâ longitudinali; elytris lineâ transversâ centrali, lineis duabus longitudinalibus, et lineâ marginali, his viridibus, nonnunquàm splendidè aureis, vel cupreo-viridibus.

Sp. 19. PACHYRHYNCHUS ORBIFER, *W.* Niger; thorace medio lineâ transversâ, et pone hanc lineâ longitudinali a transversâ usque ad marginem posticum thoracis excurrente, his e squamis cæruleo-viridibus effectis; elytris squamis cæruleo-viridibus indutis, areis rotundatus denudatis.

"This species I suspect, as well as that described under the name P. chlorolineatus, is but a local variety of P. moniliferus. In specimens from some localities, the scales forming the markings are of a beautiful golden green colour. I have before me [xxvi.] individuals in which the scales on the elytra arrange themselves into bands—one at the base of the elytra, one in the middle, and one near the apex; the first and last of these bands are curved. Such specimens make an approach to the P. moniliferus, but differ in the bands being much broader. Again, there are specimens connecting this intermediate variety more closely on the one hand with the P. orbifer (where the elytra are covered with scales, with the exception of three circular areas arranged in a transverse line near the base of the elytra, three a little behind the middle, and one near the apex), and on the other with the moniliferus."

Sp. 20. PACHYRHYNCHUS RUGICOLLIS, *W.* Ater; thorace distinctè rugoso-punctato, punctis squamis viridibus ornatis; elytris rufo-piceis, vel piceis, levitèr punctato-striatis et ad apicem quasi squamis viridibus pulverulentis.

April 5th, 1841.—W. W. SAUNDERS, Esq., President, in the Chair.

The President exhibited various splendid species of moths from Northern India.

Mr. Bainbridge exhibited several species of insects found in cigars, including a small species of Latridius and a species of Haltica, which Mr. Waterhouse stated to be very similar to a unique British species. Some masses of excrement, apparently of

a Lepidopterous larva, were also found. Mr. Gutch stated that it was cheroots and not Havannah cigars that were attacked by these insects.

Mr. Westwood exhibited some singular Coleopterous insects from the collection of Mr. Melly, including Aciopis tuberculifera, *Burm.*, and a new genus allied to Lyctus, with remarkable antennæ, &c.

Some larvæ of Trogosita Caraboides were forwarded to the Society by Messrs. Norton, Kilburn and Co., which were found among some China raw silk recently imported from Manilla, to which they had caused considerable injury, the silk having been eaten or gnawed in many places, by which the value of some bales was depreciated to the extent of twenty-five per cent.

An extract was read from a letter addressed to Mr. Westwood by Mr. James Duncan, relative to a silk cocoon which is attached by a long peduncle to the twigs of trees in India, and suggesting the great advantages which would result, in a commercial point of view, from the discovery of a chemical solvent for the gum, by which the silk threads of the cocoons of various large species of exotic moths are glued together. Mr. Westwood added, that the cocoon of the Indian Phalæna Paphia, described and figured by Roxburgh in the Linnean Transactions, agreed with the description given by Mr. Duncan.

A memoir was read by Mr. G. R. Waterhouse, containing descriptions of various Coleopterous insects brought from the Philippine Islands by Mr. Cuming.

Section Lamellicornes.

Mycteristes, *Laporte*, *Hist. Nat. Ins.* ii. p. 162. [Philistina, *Mac L.*].

M. Cumingii, *W.* Viridis nitore resplendente; elytris pedibus et corpore subtùs [xxvii.] flavescente lavatis; capite ♂ cornu erectum exhibente ad apicem latum et subemarginatum; thorace convexo, anticè porrecto in cornu validum ad apicem bifidum suprà caput pendens; tibiis ♂ scopulâ pilorum subtus instructis et externè haud denticulatis.* Long. corp. ♂ lin. 12½, ♀ lin. 9½.

Mr. Waterhouse considers that this insect is allied to the genus Macronota (and not to Goliathus), approaching nearest to M. Rhinophyllus, and that it forms the type of a distinct subgenus (especially from the difference in the structure of the feet), for which the name of Phædimus is proposed.

Lomaptera cupripes, *W.* Viridis, elytrorum marginibus pedibusque cupreis. Long. corp. lin. 14—15.

"This approaches very nearly L. valida, *G.* and *P.*, but the club of the antennæ is black and not yellow, as in that species."

Lomaptera nigro-ænea, *W.* Nigro-ænea, corpore subtùs, antennis pedibusque nigris. Long. corp. 1 unc.

"Like L. cupripes in form, but of a smaller size and æneous-black colour."

Macronota Philippinensis, *W.* Nigra; antennis, palpis, tibiis tarsisque piceo-rubris; capite lineis duabus, thorace lineis tribus, scutello elytrorumque maculis 5 lineisque duabus auratis.

Macronota nigro-cærulea, *W.* Nigra nitida, indistinctè cæruleotincta. Long. corp. 1 unc. 1 lin., lat. 6 lin.

"This species is remarkable for its uniform bluish black colour, and is rather larger than M. Diardi, *G.* and *P.*"

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* Figures of both sexes of this fine insect, with details, have been published by Mr. Westwood in the 'Arcana Entomologica,' pl. 1.

Section LONGICORNES.

Family SAPERDIDÆ?

DOLIOPS, *W.* Caput quam thorace angustius, paulo productum et posticè cylirdraceum, oculi reniformes, palpi mediocres articulis terminalibus oblongo-ovalibus et subtruncatis; antennæ 11-articulatæ breves et graciles, articulo basali elongato, 2do brevi, 3tio perlongo, et ad apicem dilatato, articulis reliquis mediocribus. Thorax subglobosus posticè constrictus. Elytra perbrevia, valdè convexa, humeris prominulis. Pedes paulo grandes, femoribus in medio crassescentibus, tibiis latis compressis; tarsis brevibus latis.

DOLIOPS CURCULIONOIDES, *W.** Obscurè viridi-æneus, indistinctè cærulescens, capite lineâ albâ longitudinali; elytris 14 guttis flavescenti-albis adspersis corporeque subtus eodem colore maculato. Long. corp. lin. 5½.

The resemblance which this insect bears in size, form, and colouring to a species of Pachyrhynchus (one of the Curculionidæ) which Mr. Cuming found in the same locality, is remarkable. From the short ovate form of the body it seems at first sight [xxviii.] allied to Dorcadion, but in the form of the head, slender antennæ and feet, it appears to approach certain Saperdæ, and especially to Colobothea.

Mr. Cuming, who was present, stated that the ladies in Manilla keep specimens of the splendid Agestrata luzonica in cages, feeding them upon sugar-cane.

Mr. Evans presented specimens of Plusia aurifera from the Island of Ascension, where it had been found abundantly; also specimens of Cynthia Cardui and Plusia Gamma from the same island.

May 5th, 1841.—W. W. SAUNDERS, Esq., President, in the Chair.

Mr. Samuel Stevens exhibited a monstrous specimen of Harpalus rufimanus, taken by Mr. Bond, in which one of the hind femora was furnished with two anomalous appendages.

Mr. Westwood exhibited several portable cases formed by the larvæ of a large species of Chlamys (a splendid Brazilian genus of Chrysomelidæ), from the collections of Messrs. Hope and Miers. These nests are composed of a short cylindrical curved tube, having a constriction at the hinder extremity which terminates in a globose knob; the other extremity is open and very oblique: at a short distance in front of the constricted part there arises a thin appendage, of similar materials with the rest of the case, which is dilated on each side into a very large and conical hollow mantle, fitted however to the mouth of the case, which thus exhibits a singular appearance. It is within this case that the larvæ undergo their transformations. Dr. Burmeister had described the nest of another species of Chlamys, which, like the present, is formed of the excrement of the insect, but had not noticed the peculiar bipartite structure observable in those now exhibited, and of which it is difficult to conceive the mode of construction.

Mr. Westwood also exhibited, from the collection of Mr. Miers, several nests formed by the larvæ of the equally splendid Brazilian genus Lamprosoma. These nests had been found attached to the bark of the Bombax trees, and closely resemble in appearance the dead bud of a tree; they appear to be constructed of the same materials as the nests of the Chlamys. The insects undergo these changes within the nests, the larva fastening the orifice to the stem of the tree, and then turning itself round so as to escape (when arrived at the imago state) from the opposite end. In one of these nests a number of parasitical Ichneumones adsciti were found.

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* A figure of this remarkable insect has been published by Mr. Westwood in the 'Arcana Entomologica,' pl. 15, fig. 1.

A note was read from the Rev. R. A. Cox, relative to the appearance of immense numbers of minute black caterpillars on the surface of pasture grounds in the parish of West Camel, Somerset, to the extent of twenty acres. The caterpillars were regarded by Mr. Stephens as those of a species of Melitæa, which are known occasionally to congregate in great numbers.

The following memoirs were read:—

"Description of a new genus of Carabideous insects from tropical Africa," by G. R. Waterhouse, Esq.

Dispherícus, *W.* Caput elongatum, labrum brevissimum, anticè emarginatum, [xxix.] labium apice subemarginatum, palpi articulo externo obtriangulari, antennæ longæ, subcrassiores, thorax valdè convexus ferè globosus. Femora antica crassiora, tibiæ intùs emarginatæ.

Dısphericus Gambianus, *W.* Ater nitidus, thorace globoso; dorso canaliculato, elytris ovatis valdè convexis profundè striato-punctatis interstitiis convexis. Long. corp. lin. 8, lat. 3. Habitat in Africâ tropicali, Gambia. In Mus. D. Melly.

This insect is remarkable for the spherical form both of the thorax and abdomen, and is considered by Mr. Waterhouse to be the connecting link between Cychrus and Potamophilus.

"A monograph of the genus Panorpa, together with descriptions of species of various allied genera," by J. O. Westwood, F.L.S.

After alluding to the recent monograph of Dr. Klug upon the family Panorpidæ, the author gives the following monograph of the typical genus Panorpa.

A. Species Europææ.

1. P. communis, *Linn.* Fusco-nigra, meso- et metathorace linea media lata lutea, abdominis apice rufo; alis ad apicem subacutis, hyalinis, venis, fasciis, maculisque nigris, stigmate elongato; vena 1ma longitudinali pone stigma, ter furcata.
2. P. Germanica, *Linn.* Fusco-nigra, meso- et metathorace linea media lutea, abdominis apice rufo-luteo; alis ad apicem rotundatis, hyalinis, venis, fasciis maculisque nigris, stigmate breviori, vena 1ma pone stigma, bis furcata.
3. P. rufo-stigma, *W.* Fulva, thorace luteo, lateribus nigris, alis hyalinis fusco-maculatis apiceque fusco, stigmate magno rufo, vena 1ma longitudinali post stigma, bis furcata. Exp. alar. lin. 13. Habitat in Albania. D. S. S. Saunders. An var. P. Germanicæ?

B. Species Asiaticæ.

4. P. appendiculata, *W.* Nigra, capite thoraceque fulvis, abdominis segmento 2do in ♂ appendiculo tenui valdè elongato, alis nigris albo variis. Exp. alar. 1 unc. Habitat in Madras. D. W. Elliott. In Mus. Britann. ♂ ♀.
5. P. Javanica, *W.* Nigra, thoracis abdominisque lateribus rufescentibus, alis sublatis, hyalinis, fascia parva, posticè dentata antè medium alæ, fascia altera lata posticè furcata pone medium, apiceque lato nigris. Exp. alar. lin. 13¾. Habitat in insulâ Javâ. D. Horsfield.

6. P. ANGUSTIPENNIS, *W.* Nigra, rostro rufo, lobis lateralibus thoracis luteis, alis valdè elongatis basi angustis, fascia tenuissima antè medium alteraque versus apicem posticè furcata, apice lato, posticè abbreviato nigris ♀. Habitat in insulâ Javâ, vel "Tennasserim Coast."

7. P. FURCATA, *Hardwicke in Linn. Trans.*

8. P. CHARPENTIERI, *Burmeister, Handb. d. Ent.* ii. 958.

9. P. JAPONICA, *Thunberg.*

[xxx.] C. Species Americanæ.

10. P. RUFA, *G. R. Gray in Griff. Anim. K.* (P. fasciata, *Klug.*).

11. P. LUGUBRIS, *Swederus.* (P. Scorpio, *Fabr.*).

12. P. NEBULOSA, *W.* Obscure luteo-fulva, abdominis segmento 5to ♂ inermi, alis subcinereo-hyalinis, puncto magno nigro ad basin stigmatis, venisque brevibus transversis nebulosis. Exp. alar. lin. 11. Habitat in Americâ boreali. D. Doubleday.

13. P. PUNCTATA, *Klug.*

14. P. TERMINATA, *Klug.*

15. P. AMERICANA, *Swederus.* (P. fasciata, *Fabr.*).

16. P. VENOSA, *W.* Obscure fulva, meso- et metathoracis lateribus obscuris, abdomine obscuro, linea dorsali pallidiori, alis pallide flavo-luteis, venis transversis, fasciis apiceque nigricantibus ♀. Exp. alar. lin. 12. Habitat in Georgiâ.

17. P. CONFUSA, *W.* Fulva, alis luteo-hyalinis, venis nigricantibus, venis transversis fusco-tinctis, fasciis apiceque tenuibus nigricantibus, abdominis segmento 5to ♂ supra spina longa armato, 6to ad basin haud inciso ♂ ♀. Exp. alar. lin. 11. Habitat in Massachusetts.

18. P. DEBILIS, *W.* Luteo-fulva, abdominis basi supra nigro, segmento 5to cornu brevi obliquo armato, 6to basi supra emarginato, alis pallidis fasciis apiceque fuscis. Exp. alar. lin. 11. Habitat in Americâ septentr.

19. P. SUBFURCATA, *W.* Obscure fulva, capite magis rufescente, abdomine supra ad basin obscuro, segmento 5to cornu brevi dorsali armato, alis fusco-fasciatis, vena pone stigma ad apicem vix furcata ♂ ♀. Exp. alar. lin. 11—13. Habitat in Novâ Scotiâ.

EUPHANIA, *W.* Caput prothorace haud occultatum infra in proboscidem longitudine mediocri productum. Antennæ longitudine alis æquales. Alæ longæ elongato-ovatæ, anticæ costa dilatata haud areolata, disci venis longitudinalibus ferè ut in Panorpa dispositis. Ungues tarsorum acuti basi tantum serrulati, pulvillo magno intermedio.

1. EUPHANIA LUTEOLA. Fulva, antennis nigris basi fulvis, meso- et metathorace piceis ad latera rufescentibus, abdomine piceo, segmentis 4 apicalibus fulvis, pedibus piceis, femoribus fulvis, alis pallidè luteis, ad basin magis fulvis, venis discoidalibus fuscis, basalibus fulvis, stigmate fusco. Exp. alar. lin. 15½. Habitat ——? In Mus. Britann.

MEROPE, *Newman.*

MEROPE TUBER, *N. in Ent. Mag.* v. 180. Habitat "Trenton Falls," Amer. septentr.

BITTACUS, *Latreille.*

1. B. AFFINIS, *W.* Testaceus, abdominis apice tarsisque posticis obscurioribus, alis pallidè fuscescentibus, stigmate fusco, venisque parum fusco-tinctis. Exp. alar. lin 19½. Habitat in Brasiliâ.

2. B. PUNCTIGER, *W.* Fulvescens, femoribus setis paucis nigris e guttis minutis [xxxi.] fuscis prodeuntibus, armatis; alis paullò latioribus nitidis flavido-hyalinis, stigmate ferè concolori guttisque numerosis paullò obscurioribus. Exp. alar. lin. 20. Habitat in Georgiâ Americæ.

3. B. PALLIDIPENNIS, *W.* Totus fulvo-luteus, tibiarum summo apice nigricanti, alis pallidissimè luteis, unicoloribus, stigmate vix obscuriori. Exp. alar. lin. 16½. Habitat —— ?

4. P. PILICORNIS, *W.* Pallidè fusco-luteus, pedibus lutescentibus, alis hyalinis, stigmate vix colorato, antennis longe pilosis. Exp. alar. lin. 18½. Habitat in Americâ septentr. D. Doubleday.

June 7th, 1841.—W. W. SAUNDERS, Esq., President, in the Chair.

The Rev. F. W. Hope exhibited a variety of new and splendid Coleopterous insects obtained by him during a recent visit to Paris. He also exhibited a piece of iron-stone, forwarded by Wm. Stephenson, Esq., Surgeon, Donnington, exhibiting impressions somewhat resembling those of the wing of a butterfly, but which the President considered to be the leaf of one of the fossil ferns (Holopteris ——?) the veins being quite unlike those of any insect.

Mr. S. Stevens exhibited a small collection of Indian Coleoptera which he had recently acquired, including three species of Paussidæ, Platyrhopalus denticornis, P. aplustifer, *W.*, and a new species, since described by Mr. Westwood in the Proceedings of the Linnæan Society under the name of Paussus Stevensii. Mr. Stevens also exhibited living specimens of several rare British Coleoptera, recently taken in Hainault Forest, namely, Leptura scutellata, Calosoma Inquisitor, Elater balteatus, &c. He also brought for distribution amongst the Members a number of living specimens of Trichius nobilis.

Mr. Marshall exhibited a portion of the comb of the honey-bee entirely destroyed by the larva of Achroia alvearia, which had now arrived at the perfect state, and observed, that the cocoons, when first formed, are of a pure white silk, but are soon afterwards found to be coated over with black particles of excrement. He noticed the difficulty which he experienced to account for this, unless, as he believed was the case, the larva leaves a hole open at the end of the cocoon, and is in the habit, before its transformation, of going out at this aperture in order to deposit its excrement. He also noticed the extreme rapidity with which the moth vibrates its antennæ.

Mr. A. White exhibited some cocoons of an insect from Honduras, one end of which was furnished with a flat trap-door, fastened by an admirably contrived hinge, and which he conceived was formed either by a Coleopterous or Cimbicideous insect. He also exhibited a drawing, made by Mr. Angers, of a splendid Papilio in the collection of the British Museum, which, if new, he proposed to name Papilio Iswara.

The completion of Mr. Westwood's memoir on the Panorpidæ was read.

July 5th, 1841.—The Rev. F. W. HOPE, V.P., in the Chair.

Mr. J. F. Stephens exhibited specimens in illustration of the natural history of

Nematus Ribesii, *St.*, which had this year committed great devastation upon currant-[xxxii.] trees in the neighbourhood of London, stripping the trees entirely of their leaves, and being in some places so numerous that not a single currant-tree has escaped. The female deposits eggs *upon* the veins of the leaves, upon which the larvæ feed as soon as hatched. He had counted as many as fifty-seven upon a single leaf: so rapid was their consumption of the leaves, that he had had a currant-bush completely stripped in a single night. They had first appeared in May, and the larvæ now exhibited were the third brood this season. The larva forms its cocoon on the surface of the ground.

Mr. S. Stevens exhibited several nests of Apoderus Coryli which he had found upon oak-trees.

Mr. Westwood exhibited a new species of Œstrus from India, and a new genus of Mantidæ with conical eyes from Senegal, the latter from the collection of the Rev. F. W. Hope.

Mr. Walton exhibited a living specimen of Monochamus Sartor?, taken in a new house at Islington, and two specimens of Hylobius Abietis found crawling in the parlour of his own house, the floor of which had been newly laid down, from which he supposed they had escaped. Likewise a species of Micronyx, *Sch.* (a Curculionideous genus not hitherto introduced into the native lists), which had been described by Mr. Curtis in the 'Annals of Nat. Hist.,' vol. v. p. 280., as a species of Pissodes (P. pygmæus). He also exhibited a new British species of Tychius.

Mr. White exhibited some exotic species of Arachnida and Cimicidæ, including a new species of the genus Agapophyta from the collection of Mr. James Wilson, and also some new species of Curculionidæ found in Scotland by Mr. Greville, namely, Magdalis phlegmaticus, *Little*, Centorhynchus viduatus, a new species near C. pollinaris, and Anthonomus pubescens.

Mr. F. Bond brought for distribution amongst the Members a number of specimens of Callidium violaceum, taken by himself from an old larch post near Kingsbury, Middlesex.

Mr. Westwood mentioned the destruction committed by the larvæ of Tenthredo testudinea upon young apples, devouring the interior of the fruit, being the only instance yet known of such habits amongst the Tenthredinidæ, although the larvæ of Nematus intercus and some allied species inhabit the interior of galls upon willow-leaves, upon the substance of which they subsist. The larvæ of the former insect emit a very powerful scent, similar to that of the bed-bug, and quit the apple as soon as it is fallen to the ground, in order to undergo their transformations in the earth, the eggs being deposited on the young fruit whilst the trees are yet in flower.

The following memoir was read:—

"Descriptions of some nondescript Lamellicorn beetles in his collection," by the Rev. F. W. Hope, F.R.S., &c.

1. NIGIDIUS GRANDIS, *H.* Niger, auriculatus, mandibulis brevibus robustis, externè in cornu luniferum elevatis, elytris fortiter sulcatis, thorace sparsim excavato punctatis. Long. corp. lin. 10. Hab. Sierra Leone. D. Strachan.

[xxxiii.] 2. LUCANUS BURMEISTERI, *H.* Niger, mandibulis capite thoraceque longioribus dentibus binis ad apicem minoribus tertio ferè in medio multo fortiori, capite anticè elevato, thoracis lateribus in medio acuminatis, elytris castaneis, ad basin triangulo nigro variis, femoribus tibiisque inermibus. Long. corp. (mandib. incl.) 3 unc. 4 lin.—Hab. Mysore, India.

3. Dorcus Darwinii, *H.* Atrofuscus, mandibulis dentatis nigris, capite posticè lato, subspinoso, thoracis disco in medio elevato, elytris convexis multipunctatis, tibiis anticis denticulatis, 4 posticis in medio unispinosis. Long. corp. lin. 7½.—Hab. Chili.

4. Valgus argillaceus, *H.* Fuscus, capite flavo-tomentoso, thorace anticè subcornuto denticulato, posticè angulis rotundatis, ano granulifero tomento asperso, corpore infra argillaceo, tibiis binis anticis dilatatis. Long. corp. lin. 3½.—Hab. East Indies.

5. Gnathocera Natalensis, *H.* Smaragdina, capite ferè quadrato, marginibus elevatis nigris, thorace viridi varioloso, elytris viridi-opalinis crebrissimè punctulatis, podice posticè aureo, tarsis piceis. Long. corp. lin. 7.—Hab. Natal.

6. Dicheros ornatus, *Burmeister's MSS.* Niger, capite medio excavato, posticè tridentato, thorace nigro, fascia obliqua rubra ferè interrupta, elytris nigris, macula lata flava, basi apice suturaque nigricantibus, pedibus nigris, femoribus rubro-corallinis. Long. corp. lin. 8.—Hab. East Indies, Mysore.

7. Cælorrhina concolor, *Burmeister's MSS.* Smaragdina aut viridi-opalina, clypeo anticè valdè emarginato, elytris concoloribus striato-punctatis humeris nigricantibus, corpore infra viridi, segmentis abdominis medio opalinis. Long. corp. lin. 12.—Hab. Sierra Leone.

8. Schizorhina succinea, *H.* Flava, capite anticè luteo, posticè nigricante punctulato, thorace fusco-flavo maculis duabus discoidalibus, elytris succineis, pectore nigricanti, femoribus flavis, tibiis tarsisque atro-piceis. Long. corp. lin. 9½.—Hab. New Holland.

9. Cetonia Indra, *H.* Rubro-punicea, clypeo subemarginato, thorace quadrimaculato, elytris acuminatis atro-puniceis macula irregulari ochraceo-flava in medio disci alteraque minori ferè ad angulum externum; corpore infra rubro-puniceo, pectore segmentis abdominis utrinque ochraceo maculatis. Long. corp. lin. 12.—Hab. Manilla.

10. Agestrata Withillii, *H.* Nigra nitida glabra, thorace binis foveis parum distinctis ferè ad scutellum positis, corpore infra atro pectore segmentisque abdominis aurantio maculatis. Long. corp. lin. 19.—Hab. Bombay.

11. Agestrata Gagates, *H.* Nigra nitida, thorace lobato subconvexo glabro, corpore infra atro-nitido, segmentis abdominis utrinque aurantio maculatis. Long. corp. lin. 16.—Hab. East Indies, Travancore.

[xxxiv.] 12. Macronota vittigera, *H.* Nigra, capite linea media aurantia, thorace trivittato vittis aurantiis, elytris bivittatis vittis ante apicem abbreviatis, podice in medio nigro lateribus flavis. Long. corp. lin. 13½.—Hab. East Indies, Mysore.

13. Pachytricha, *H.* Corpus magnum obesum convexum; labrum porrectum bifidum; antennæ 10-articulatæ; maxillæ apice valdè penicillatæ; mandibulæ rectæ apice obtusæ; mentum apice valdè emarginatum; ungues intus dentibus duobus instructi.

This genus is regarded by Burmeister as intermediate between Glophyrus and Chasmatopterus.

P. castanea, *H.* Picea, capite valdè acuminato, thorace anticè utrinque spinoso, scutello piceo, elytris castaneis, podice brunneo, pedibus piceis. Long. corp. lin. 15.—Hab. New Holland.

A memoir was also read by Mr. Westwood, "On the Australian genus Cryptodus, and upon Parastasia, the Asiatic representative of the Rutelidæ."

After noticing the singular character of the genus Cryptodus, and its location by Mr. MacLeay, at first in the family Trogidæ, and latterly, in Dr. Smith's African Researches, as one of the primary forms of the Cetoniidæ, including Cremastocheilus, Genuchus, &c., as its subgenera, the author institutes a comparative examination of its structure in detail with the last-named groups, as well as with the Trogidæ, and also with the Phileurideous Dynastidæ, which last are regarded by him as the true affinities of Cryptodus. The nine-jointed antennæ, upon which so much stress has been laid by Mr. MacLeay, is proved to be only a specific character, Mr. Westwood describing a new species with the following characters:—

CRYPTODUS TASMANNIANUS, *W.* Niger, nitidus, oblongus, punctatus, antennis 10-articulatis, mento basi rectè truncato, prosterno anticè producto, margine antico ferè recto. Long. corp. lin. 9½.—Hab. Van Diemen's Land. Mus. Westwood, &c.

PARASTASIA, *W.* Gen. nov. Asiaticum! e familia Rutelidarum.

Corpus valdè gibbosum, pedibus brevissimis; caput anticè bituberculatum; antennæ 10-articulatæ; mandibulæ corneæ ad apicem extus curvatæ, angulo externo in dentem subrecurvum prominentem producto; maxillæ lobo externo producto tridentato.

This genus appears to be confined to the islands of the Indian Ocean, especially those of the Philippine range. It is the first instance on record of a Rutelideous insect found in that quarter of the globe.

Sp. 1. PARASTASIA CANALICULATA, *W.* Nigra, nitida, elytris fulvo-variegatis plagis duabus elevatis, obliquis utrinque versus scutellum. Long. corp. lin. 9½.—Hab. Philippine Islands, Cuming. Mus. Hope.

Sp. 2. PARASTASIA BIPUNCTATA, *W.* Nigra, prothorace rufo, nigro bipunctato, elytris nigris, basi fulvis, singulis maculis duabus nigris. Long. corp. lin. 8¼.—Hab. Philippine Islands, Cuming. Brit. Mus.

Sp. 3. PARASTASIA DISCOLOR, *W.* Nigra, prothorace rufo, elytris castaneo-rufis, [xxxv.] basi scutelloque obscurioribus. Long. corp. lin. 7¼.—Hab. Philippine Islands, Cuming. Mus. Brit.

Sp. 4. PARASTASIA NIGRICEPS, *W.* Luteo-fulva, capite, prothoracis maculis duabus alterisque duabus ad basin elytrorum tarsisque nigris. Long. corp. lin. 5½.—Hab. Philippine Islands, Cuming. Mus. Brit.

Sp. 5. PARASTASIA CONFLUENS, *W.* Nigra, prothorace in medio rufo et impresso, elytris obscure rufis, singulo maculis duabus luteis ovalibus contiguis ante medium positis. Long. corp. lin. 5¾.—Hab. Philippine Islands, Cuming. Brit. Mus.

Sp. 6. PARASTASIA BINOTATA, *W.* Nigra, elytrorum singulo macula magna, prope scutellum fulva. Long. corp. lin. 8¼.—Hab. Java. Mus. Melly and Curtis.

Sp. 7. PARASTASIA WESTWOODII, *Waterh. MSS.* Piceo-brunnea, sordide opaca, thorace utrinque plagis obliquis fasciaque obscura in medio elytrorum nigris, antennis basi femoribus tibiisque lucidioribus. Long. corp. lin. 5¾.—Hab. Sumatra. Mus. Zool. Soc.

Sp. 8. Parastasia Horsfielii, *W.* Nigra, elytris posticè piceis. Long. corp. lin. 9½.—Hab. Java, Horsfield. Mus. East Ind. Comp.

Sp. 9. Parastasia bicolor, *W.* Nigra, prothorace miniato. Long. corp. lin. 6.—Hab. Java, Horsfield. Mus. East. Ind. Comp.

Mr. Westwood also exhibited figures of many new Lamellicorn groups, which he had for some time past been preparing for publication.

Professor Burmeister (who was present) stated, in confirmation of Mr. Westwood's observations on the relation of Cryptodus with the Dynastidæ, that he had observed that the tarsi and ungues in that genus were dissimilar in the sexes, as in some of the aberrant Dynastidæ, and that the genus Trionychus of Dejean appeared to him the nearest relation to Cryptodus, which he considered to be in no wise related to the Cetoniidæ, as regarded by Mr. MacLeay.

A note was also read by Mr. Tulk on the habits of a large toad which he had found confined in a hole, out of which it was impossible for it to make its escape, and the intestines of which he found filled with the remains of various Carabidæ, especially Steropus madidus, which had sought shelter in the same place, and which had scarcely undergone any change whilst in the stomach of the toad. This induced Professor Owen to observe that an examination of various kinds of Coprolites of animals analogous to the toad would probably lead to the discovery of many extinct species of insects of which we are now ignorant.

August 2nd, 1841.—John Walton, Esq., V.P., in the Chair.

Mr. S. Stevens exhibited a number of minute British Coleoptera recently captured in Kent, including specimens of a species of Micronyx, *Schönh.*, a genus not hitherto recorded as British, but which Mr. Curtis had described as a species of Pissodes [xxxvi.] (P. pygmæus). Mr. Curtis still however considered his insect as distinct, being smaller than Mr. Stevens's specimens; but Mr. Walton stated that he possessed specimens smaller than any of Mr. Curtis's.

Mr. F. Parry exhibited two cases of splendid insects (chiefly nondescripts) from the Himalayas.

Mr. Westwood stated that three specimens of Carabus Schönherri were taken on Ben Lomond in 1822, by A. Melly, Esq., in whose collection he had recently observed them. Mr. White also stated that there was a specimen in the British Museum cabinet, taken on Ben Lawes by Dr. Leach, which had also been supposed to be this species.

Mr. Westwood exhibited a few of the extensive collection of dissections made by Latreille, consisting of several hundred illustrations chiefly of the Coleoptera and Hymenoptera, accompanied by notes and sketches, and which had been presented to him by Mr. Melly. He commented upon the value of this collection, as affording the means of authenticating Latreille's various descriptions and notices; adding as a proof of the minute scrupulosity of that distinguished entomologist, that occasionally several dissections occurred of the same insect (four of Oryssus and three of Psammœchus were exhibited): it likewise afforded the means of determining the precise types of certain genera, of which Anteon and Ceraphron, with their dissections, were exhibited as illustrations.

Mr. Westwood also exhibited Latreille's specimens and dissections of the anomalous genus Prosopistoma, from Madagascar, regarded by that author as Crustaceous near Apus, but which M. M. Edwards regards as the larva of some other crustaceous animal.

Mr. A. White exhibited a drawing of Echidnocerus cibarius, a new genus of Anomourous crabs, brought from the Colombia river by Sir George Staunton, used by the natives for food, and nearly allied to Lithodes, but distinguished by the spinose basal joint of the antenna. He also exhibited drawings of a species of Ega, allied to E. affinis of M. Edwards, taken on the cod by the Newfoundland fishermen, by whom it is called the fish-doctor. Its spawn is called by them egg-salve, and is used both as a salve and as a bait for the cod.

He also exhibited specimens of some very minute bees, which had lived in a colony for two years near Southampton. Their nest had been found in a piece of logwood from Campeachy, from which they had been removed into a cocoa-nut filled with pieces of log-wood, in which they had thriven and made honey. The specimens were too much damaged to admit either the genus or species to be determined.

The following memoirs were read:

Monograph of the Elaterideous genus Compsosternus, *Latr.* By the Rev. F. W. Hope.

Sp. 1. (Type of the genus) ELATER FULGENS, *Fabr.* Long. corp. lin. 20.—Hab. China.

Sp. 2. C. SUMPTUOSUS, *H.* C. aurato-viridis, nitidus, capite anticè subfoveolato, elytris aurato-viridibus, acuminatis, glabris, nitidis et punctulatis. Long. corp. [xxxvii.] lin. 14¾.—Hab. Java? Manilla. Mus. Dupont.

Sp. 3. C. AUREOLUS, *H.* Metallico-viridis roseoque colore tinctus, antennis nigricantibus, thorace vix subconvexo, postice lobato, elytris viridibus striato-punctatis, striis haud fortiter impressis. Long. corp. lin. 14¼.—Hab. Singapore. Tenasserim coast.

Var. C. Calanus, *Hope*, *MSS. olim.*

Sp. 4. C. CANTORI, *H.* Æneus, thorace marginato et tomentoso, antennis palpisque nigricantibus, thoracis lateribus roseo-cupreis, elytris æneis, substriatis, tenuissimè punctulatis. Long. corp. lin. 22½.—Hab. Assam. Dr. Cantor.

Sp. 5. C. LATREILLII. Purpureo-viridis, thorace in medio purpureo, lateribus roseis, elytris viridibus purpureoque tinctis; corpore infrà aurato-viridi. Long. corp. lin. 15¼.—Hab. Cochin China. Duvaucel. M. Dupont.

Sp. 6. C. WILSONI, *H.* Aurato-viridis, lateribus thoracis subroseo-tomentosis, elytris viridibus, antennis atro-violaceis, thorace subconvexo, tomentoso, medio viridi, lateribus æneis roseo colore tinctis, elytris viridibus, lateribus auro fluentibus, femoribus tibiisque violaceo-æneis, tarsis cyanescentibus. Long. corp. lin. 18. —Hab. Madras and Neilgherry Mountains.

Sp. 7. C. SMARAGDINUS, *H.* Viridis, antennis palpisque nigro-violaceis, scutello nigro-æneo, elytris atro-viridibus subtilissime punctulatis, corpore infrà cyaneo-viridi, femoribus tibiis violaceis tarsisque atro-piceis. Long. corp. lin. 14.—Hab. Madras.

Sp. 8. C. DELESSERTII, *Guerin.*

Sp. 9. C. DUPONTI, *H.* Viridis, thorace antice convexo, angulis lateralibus subdepressis, elytris viridibus tenuissime punctulatis, corpore infra subaurato-viridi, pedibus obscurioribus. Long. corp. lin. 12.—Hab. Malabar. Mus. Dupont.

Sp. 10. C. ROSICOLOR, *H.* Puniceo-viridis roseoque colore tinctus, thorace vix convexo, punctato postice subprotenso roseo, elytris fortiter striato-punctatis,

sutura marginibusque externis elevatis et roseis, pedibus flavo-testaceis, tarsis obscurioribus. Long. corp. lin. 11½.—Hab. Java. Mus. Dupont.

Sp. 11. C. Proteus, *H.* Aurato-viridis, antennis nigricantibus, thorace convexo sub lente subtilissime punctulato, elytris auratis splendidis, marginibus lateralibus elevatis, sutura violacea, pedibus viridibus, tarsis piceis. Long. corp. lin. 16. —Hab. Manilla.

Sp. 12. C. Stephensii, *Hope.* In Gray's Zool. Miscell.—Hab. Nepaul.

Sp. 13. C. Leachii, *H.* Chalybeo-viridis, thorace cærulescenti, elytrisque acuminatis et æneo-virescentibus, thorace in medio parùm convexo, elytris viridibus, corpore infra cærulescenti, pedibus concoloribus. Long. corp. lin. 17.—Hab. East India. Singapore.

Sp. 14. C. Echscholtzii, *H.* Chalybeo-violaceus, capite inter oculos vix foveo-[xxxviii.] lato, antennis atro-violaceis, elytris sub lente tenuissime punctulatis, pedibus violaceis, tarsis infrà piceo-pilosis.—Hab. Manilla.

Notice of a hitherto-unobserved character distinguishing the sexes of certain Lucanidæ. By J. O. Westwood (since published in the Annals of Natural History, vol. viii. p. 121).

Descriptions of some Dynastidæ in the collection of the Rev. F. W. Hope, illustrating the natural relations of the genus Cryptodus with figures. By J. O. Westwood.

Rhizoplatys, *W.* (Subg. nov. e genere Phileuri.) Corpus oblongum subconvexum. Clypeus anticè acuminatus posticè tuberculo armatus. Antennæ articulo 1mo latissimo. Maxillæ galea tridentata, mandone inermi. Mentum magnum heptagonum, labium et articulos duos basales palporum labialium obtegens. Ungues pedum anticorum inæquales, articulo basali tarsorum posticorum suprà elongato-acuminato.

Rh. cribrarius, *W.* Piceo-niger, prothorace rudè punctato, excavatione profundâ in parte mediâ et anticâ, utrinque tuberculis duobus elevatis armato, elytris irregulariter punctatis. Long. corp. lin. 10.—Hab. Senegal?

Actinobolus, *W.* Corpus oblongo-ovatum convexum. Clypeus anticè in lobos 5 rotundatos productus. Antennæ articulo 1mo lato. Os inferum mento magno obtectum. Labrum transversum. Labium et palpi labiales (nisi apex articuli ultimi) mento obtecta. Mandibulæ corneæ, curvatæ apice acutæ.

Act. radians, *W.* Piceo-rufus, antennis tarsisque nigricantibus, capite posticè et prothorace anticè varioloso-punctatis, hoc lineâ dorsali impresso, elytris striato-punctatis. Long. corp. lin. 9.—Hab. Brazil.

A review of the characters of the Phileurideous Dynastidæ, in comparison with those of Cryptodus and the two groups above described, was then made, and a description was added of a genus "which possesses a structure of the organs of the mouth quite unlike that of every other Dynastideous group;" namely,

Leptognathus, *W.* Corpus oblongo-ovatum convexum. Clypeus (os omnino obtegens) antice in lobos duos rotundatos elevato-productus. Os inferum minutum mento magno clausum. Mandibulæ minutæ bipartitæ (ferè ut in Cetoniis). Maxillæ lobis duobus minutissimis membranaceis (supero vel galeâ vix distinguendo). Prothorax magnus, ♂ anticè subquadratus impressione magnâ transversâ notatus.

Leptognathus Latreillianus, *W.* Piceo-niger, nitidus, prothorace rude punctato posticè sulco impresso, elytris rude punctato-striatis striis ante apicem confluentibus. Long. corp. lin. 8—10.—Hab. Senegal.

[xxxix.] September 6th, 1841.—W. W. Saunders, Esq., F.L.S., President, in the Chair.

The President read an extract from a letter received from S. S. Saunders, Esq., in Albania, giving an account of some experiments made with Mygale Ionica, whence it appeared that the peculiarity previously observed and described by him in his memoir on that insect, consisting of the formation of a trap-door at each end of its tube, was only an accidental circumstance.

Mr. Tulk exhibited a specimen of Tachina pacta, *Meig.*, together with the abdomen of Carabus violaceus: the former insect had been reared from one of four pupæ found in the interior of the abdomen of the latter. The Carabus was found dead amongst moss on the 16th of August, 1841, and the first imago appeared on the 21st, the second on the 23rd, the other two still remained undeveloped. These four pupæ almost entirely filled up the cavity of the abdomen. An oval aperture existed in the margin of the third ventral arc of the abdomen, near the margin of the elytra, and was probably that by which the larvæ made their way into the interior, after having been hatched from eggs deposited on the exterior of the living beetle.

He also exhibited some specimens of Pediculus Melittæ, *K.*, found upon the body of Volucella bombylans. Mr. Newport stated, that notwithstanding this fact, he was convinced, by a series of observations, that these supposed Pediculi were in reality the young larvæ of Meloë.

Mr. Hope communicated a letter and drawing received by Prof. Royle from Dr. Malcolmson in India, illustrating the habits of a large species of Lamia which had destroyed some large trees, and the reply he had written to the queries of the latter gentleman as to the name, habits, and means of destruction of the insect in question.

Mr. Ingpen exhibited a species of Clytus which had been reared from the sugar-cane, having remained at least three years in the larva state.

Mr. G. R. Waterhouse exhibited a specimen of a Coleopterous larva, which he had found on the stems of water plants, which he regarded as the larva of Donacia micans, and of which he read a detailed account.

Mr. Hope communicated a letter he had received from Dr. Cantor, stating that he had kept Fulgora candelaria alive for a length of time, and had never observed the slightest luminosity, the existence of which was also denied by several intelligent Chinese with whom he had spoken. If at all luminous, he considered that the luminous property might only be developed at particular seasons.

Mr. Yarrell exhibited a large globular nest, of beautiful white silk, formed by an English spider, and which was half filled with minute spiders just hatched.

Mr. S. Stevens exhibited an extensive series of rare Curculionidæ captured by himself near Arundel, of which he has since published a list in the 'Entomologist,' including Apion dissimile, *Germar*, a species new to Britain.

Mr. Walton mentioned that he had recently captured both sexes of the rare Apion
[xl.] lævigatum at Birch Wood, the species having been previously only found in Suffolk, and females alone known; these were of a blue colour, but the male is black, as in A. Sorbi. He likewise brought for distribution amongst the Members a number of specimens of Apion Limonii, which he had recently captured in great numbers upon the Statice Limonium at Holme-juxta-mare, on the coast of Norfolk, where this beautiful plant covers hundreds of acres.

Mr. Newport announced the recent discovery of Scolopendrilla notacantha of Gervais, which he had found at Sandwich, in Kent.

Mr. Westwood exhibited a fossil which he obtained at Stonesfield, and which from its form appeared to be the large elytron of a beetle, especially as Dr. Buckland had obtained many elytra from that place, and which, in his Bridgewater Treatise were described as Buprestideous, but which Mr. Westwood regarded as Prionideous, Dr. Buckland having exhibited them to him together with some Trilobites recently received from Cincinnati, together with another, supposed to be a Calymene, but which Mr. Westwood regarded as the abdomen of Pinnotheres. This distinction was important, since, if correct, it implied the existence of recent animals in the supposed older formations (of which the fossil tooth recently found at Stonesfield offered an instance), thereby bringing into question the correctness of the generally received views of the superposition of the different geological formations.

A memoir was read upon Mæchidius, *MacL.*, a genus of Lamellicorn beetles, with descriptions and figures of some new genera belonging to the same tribe, by J. O. Westwood, F.L.S.

From a review of the characters of the genus Mæchidius Mr. Westwood refers it to the family Melolonthidæ, and describes the following new species:—

Mæchidius Hopianus, *W.* M. oblongus, scaber, nigricans, opacus, setulis luteis (præsertim thorace) subcinereus; prothoracis angulis posticis valde emarginatis. Long. corp. lin. 5½.—Hab. New Holland? Mus. Hope.

Mæchidius Mellianus, *W.* M. angustior, nigricans, capite anticè vix emarginato, prothoracis lateribus rotundatis, angulis posticis extus prominentibus, tibiis anticis obtusè tridentatis. Long. corp. lin. 4½.—Hab. New Holland. Mus. Melly.

Mæchidius Macleayanus, *W.* M. piceus, nitidus, punctatus, longius setosus, elytris oblongo-ovatis depressis, thorace lateribus rotundatis, angulis posticis acutis, tibiis anticis acute 3-dentatis. Long. corp. lin. 5.—Hab. New Holland. Mus. Westwood.

Mæchidius Raddonianus, *W.* M. piceus, punctatus, brevissimè setosus, capitis margine antico profundè et acutè emarginato, thoracis lateribus rotundatis, angulis posticis acutis. Long. corp. lin. 4½.—Hab. Port Philip, Australia. Mus. Raddon.

Mæchidius rufus, (Hope MSS.). Rufo-castaneus, nitidus, punctatus, tenuè
[xli.] setosus, capite lato, marginibus elevatis, tibiis anticis obtusè bidentatis, femoribus posticis in medio dilatatis articuloque basali tarsorum posticorum longè penicillato. Long. corp. lin. 2½.—Hab. Port Essington, Australasia. Mus. Hope.

Cryptogenius, *W.* (Gen. nov. ad fam. Trogidarum pertinens). Corpus suprà planum, rugosum, setosum, prothorace subrotundato, elytris angustiori, pedibus longis, gracilibus, serrulatis. Clypeus inferus. Labrum maximum, os (insecto quiescenti) omnino obtegens. Mentum lateribus angulatis, anticè profundè et acutè emarginatum. Antennæ 10-articulatæ.

Crytogenius Miersianus, *W.* Cr. nigricans, subnitidus, luteo-setosus, capite et prothorace circulis concentricis confluentibus, sculpturatis, elytris striis numerosis tenuè impressis, singulo tuberculis triplici serie ordinatis. Long. corp. lin. 3½. Hab. South America. D. Miers.

Anaides, *W.* (Gen. nov. ad fam. Trogidarum pertinens). Corpus suprà planum, rugosum, setosum, anticè angustius, prothorace in medio longitudinaliter impresso, posticè latiori. Caput subovale. Labrum exsertum, transversum, parùm emarginatum. Mandibulæ porrectæ, apice curvatæ, acutæ. Maxillæ elongatæ, lobo apicali longo, setoso. Mentum oblongum, lateribus parùm rotundatis, margine antico ferè recto. Pedes longiusculi, serrati. Antennæ 10-articulatæ.

ANAIDES FOSSULATUS, *W.* A. nigro-fuscus, subnitidus, punctulatus, setosus, antennarum clavâ pallidiori, tibiis anticis dentibus tribus armatis. Long. corp. lin. 3½.—Hab. South America. Mus. Hope.

SILPHODES, *W.* (Gen. nov. ad fam. Geotrupidarum pertinens). Corpus ovatum, subconvexum, marginibus reflexis. Labrum porrectum, breve, in medio emarginatum. Mandibulæ robustæ, corneæ, margine externo valdè rotundato, apice in dentibus duobus minutis declivibus producto. Maxillæ lobo externo magno, rotundato. Mentum subquadratum, lateribus rotundatis. Pedes longi, graciles, unguibus inæqualibus et irregularibus.

SILPHODES SUMATRENSIS, *W.* S. piceo-castaneus, capite latiori, elytris striato-punctatis, margine longe-setoso. Long. corp. lin. 3½.—Hab. Sumatra. Sir S. Raffles.

SILPHODES PHILIPPINENSIS, *W.* S. piceo-castaneus, capite thoraceque magis rufescentibus, elytris irregulariter valdè punctatis, stria suturali alterisque 8 longitudinalibus (per paria dispositis) e punctis confluentibus formatis. Long. corp. lin. 4½—6.—Hab. Philippine Isles. Mr. Cuming.

SILPHODES GAMBIENSIS, *W.* S. castaneo-fuscus, prothoracis et elytrorum marginibus suturaque rufescentibus; elytris sub lente tenuissime punctatis striisque tribus è punctis majoribus in singulo elytro. Long. corp. lin. 6.—Hab. Gambia and Senegal. Mr. Tebbs. Mus. Brit.

[xlii.] October 4th, 1841.—W. W. SAUNDERS, Esq., F.L.S., President, in the Chair.

Mr. Westwood exhibited some beautiful insects from the Gold Coast, Africa, and Port Philip, Australia, from the collection of Mr. Raddon, including a new species of Goliathus (Eudicella ignita, *W.*), some fine Cerambycidæ, &c. Also a new and singular genus of large size, allied to Cicada, from New Holland, from the collection of Mr. Curtis, and which that gentleman proposed to name Cystosoma Saundersii. Also a common house-spider, to the hind extremity of the cephalothorax of which remained attached the exuviæ of the dorsum of the former cephalothorax, although it had remained alive in that state several days. He also exhibited a drawing of a new modification of the pad-like cushion on the under side of the basal joints of the fore tarsi of a new species of Cicindelidæ from the Mauritius (constituting a new and distinct subgenus), in which the whole of the under side of the limb was thickly clothed with clavate setæ, visible to the naked eye.

The following memoirs were read:—

Notices of the cannibal habits of various caterpillars. By G. A. Thrupp, Esq.

Additional observations upon, and descriptions of new species belonging to the genera Cryptodus, Mæchidius and Parastasia. By J. O. Westwood, the substance of which is incorporated in the abstract of the proceedings of the meetings of July 5th and September 6th, 1841.

November 1, 1841.—W. W. Saunders, Esq., F.L.S., President, in the Chair.

The Rev. F. W. Hope exhibited a fossil inclosed in a nodule of ironstone from the coal-district near Wellington, in Shropshire, collected by Dr. Stevenson, having all the appearance of a caterpillar of a large Bombyx, with two series of dorsal tubercles, and with a series of long, cylindrical, furcate appendages on each side of the body. Fossil plants were not uncommon in this locality, but this was the only instance of an insect having been discovered. Dr. Stevenson had also found some specimens having the appearance of the wings of insects, but these, having been examined by several botanists of eminence, were pronounced to be leaves of fossil plants allied to Cyclopteris.

Mr. Westwood exhibited portions of a very extensive collection of insects formed by E. P. Coffin, Esq., during his residence in Mexico, which was especially rich in Hymenoptera, particularly in the family of bees, some of which were very singular.

Mr. Evans exhibited a drawing of a caterpillar of Zeuzera Æsculi, and part of a young tree which it had destroyed.

Mr. E. Doubleday brought for distribution amongst the members a large number of North-American Coleoptera. He also exhibited portions of his collection of American Lepidoptera, consisting of an entire series of the genus Polyommatus (five [xliii.] species), a new species of Colias, two species of Terias hitherto confounded together, and a singular specimen of Saturnia Promethea, having the antennæ and body of the male, and wings of the form and colour of those of the female.

Dr. Becker, of Wiesbaden, exhibited portions of his collection of German Lepidoptera, each species being preserved in a small case with the top and bottom of glass, —a mode much adopted in Germany.

The following memoirs were read:—

Observations on the Coleoptera of Port Essington, in Australia, with descriptions of the following new species. By the Rev. F. W. Hope, F.R.S., &c.

Lamellicornes.

Bolboceras Kirbii, *Bainbridge* ♂. Castaneus, capite anticè clypeo emarginato, posticè cornu erecto apice acuto; thorace anticè et posticè excavato, cornu utrinque erecto valido, suprà denticulato, elytris concoloribus; corpore infrà castaneo, thorace pedibusque flavo-hirsutis. Long. lin. 10, lat. lin. 6½.

Bolboceras neglectus, *Hope* ♀. Affinis *B. Latreillii*, at minor. Castaneus, capitis clypeo emarginato, medio lineâ irregulari elevato, posticè cornuto, cornu autem apice fisso bidentato; thorace anticè abruptè truncato, posticè convexo varioloso punctis sparsim instructo; elytris striato-punctatis, corpore subtùs flavis capillis instructo. Long. lin. 8½, lat. lin. 5.

Bolboceras rotundatus, *Hope* ♀. Castaneus, clypeo integro, capite anticè excavato, medio lineâ irregulari elevatâ conspicuo, posticèque bidentato seu tuberculis binis instructo; thorace convexo glabro punctis aliquot in medio vix conspicuis; elytris striato-punctatis rotundatis piceo-castaneis, pedibus pallidioribus et pilosis. Long. lin. 3¾, lat. lin. 2.

Bolboceras rubescens, *Hope*. Rubro-piceus nitidus, clypeo integro, capite lineâ irregulari instructo; thorace convexo glabro, fossulâ rotundatâ utrinque fortiter impressâ; elytris castaneis, pedibus concoloribus. Long. lin. 2½, lat. lin. 1¼.

ONTHOPHAGUS 4-DENTATUS, *Hope* ♂. Affinis *O. Capellæ*, Kirb., at major. Niger, capite ferè trigono, clypeo emarginato, thorace anticè excavato, punctato quadridentato, dentibus mediis majoribus prominentibus, lateralibus minoribus seû tuberculatis; elytris striatis, spatio inter strias subtilissimè punctulato, pedibus antennisque flavo-ciliatis. Long. lin. 6½, lat. lin. 4.

♀. Fœmina differt thorace integro haud dentato, angulis anticis thoracis prominentibus et acutis.

ONTHOPHAGUS ERICHSONI. Niger, capite ferè trigono, tuberculo utrinque ante oculos posito; thorace anticè valdè excavato, posticè convexo cornu medio lato antrorsum extenso; elytris striato-punctatis, pedibus, funiculoque antennarum
[xliv.] piceis, capitulo flavescente; pedum anteriorum tibiis 3-dentatis, tarsis aurantiis capillis obsitis. Long. lin. 4¼, lat. lin. 2¼.

This insect will at some future time be considered as the type of a distinct genus.

ONTHOPHAGUS PICIPENNIS, *Hope*. Piceus, thorace trigono, capite ante oculos furcato, thorace antrorsum lineâ elevatâ conspicuo, punctulato; elytris nigris nitidis, corpore infrà concolori, pedibus rubro-piceis. Long. lin. 4¼, lat. lin. 2.

This species I have formerly received from Melville Island, and it is evidently the same as that taken at Port Essington.

ONTHOPHAGUS GLABRATUS, *Hope*. Niger, capite integro, parùm excavato et subrugoso; thorace lævi sub lente subtilissimè punctato, elytris striato-punctatis, corpore infrà nigro, antennis tibiis tarsisque piceis et rufo-ciliatis. Long. lin. 5, lat. lin. 2½.

This species varies greatly in magnitude and in colouring; several specimens are evidently immature.

ONTHOPHAGUS DISCOLOR. Viridi-æneus, clavâ antennarum flavescenti, capite integro anticè excavato, posticè convexo, lineis binis elevatis transversis, unâ mediâ, alterâ inter oculos positâ; thorace viridi, nitido sub lente punctulato; elytris atro-viridibus, striato-punctatis, punctis fortiter impressis, corpore infrà concolori. Long. lin. 3, lat. lin. 1½.

The above species of Onthophagus are all from Port Essington; and I may here mention that there are in my collection twenty-four species from other parts of New Holland which have hitherto remained undescribed.

TESSARODON PICEUM, *Hope*. Affine *Scarabæo Novæ-Hollandiæ*, Fab. Piceum, capite bituberculato, thorace inermi punctulato elytrisque striato-punctatis et subscabrosis; corpore infrà rufo-piceo, pedibus ciliatis. Long. lin. 2¼, lat. lin. 1½.

This appears to be an insect closely allied to the Novæ-Hollandiæ of Fabricius, from which it differs in several points.

COPRIS GLABRICOLLIS, *Hope*. Niger, capite ferè trigono, parùm emarginato vix subrugoso, thorace lævi nitido, posticè lineâ transversâ punctorum satis notato, elytris striato-punctatis, punctis fortiter impressis: corpore infrà nigro, capitulo antennarum flavescente, funiculo autem et tibiis rufo-ciliatis Long. lin. 5, lat. lin. 2½.

True Copres in New Holland are rare; from Melville Island I possess three species, which I have named steriocerus, corniger and insularis. The insect described above is an additional one. They are all remarkable for having the punctures apparent on each side of the elytra, and therefore are closely allied to several of the African Copridæ, such as C. Orion of De Jean, and also to Copris Bengalensis of Hope.

Mæchidius rufus, *Hope*. Rufus, capite parùm emarginato subreflexo, thorace ferè semicirculari, lateribus extrorsùm convexis, angulis posticis vix rectangulatis; elytris capite cum thorace duplo longioribus, striato-punctatis et sub- [xlv.] granulatis; corpore infrà rufo, pedibus concoloribus. Long. lin. 2¼, lat. lin. 1¼.

Phænognathus, *Hope*, *n. g.*

Pachypo affine, pedibus posticis longissimis. Caput in medio cornutum, labrum porrectum, conicum, mandibulæ exsertæ, antennæ 9-articulatæ. Maxillæ lobis minutissimis. Prothorax anticè subretusus. Elytra conica, posticè valdè attenuata.

Phænognathus Erichsoni, *Hope*. Castaneus, capite unicorni, cornu nigro, posticè flavo tomentoso; thorace punctato, margine omni ciliato; elytris ad basin castaneis, posticè nigris et striato-punctatis, punctis quasi erosis: corpore infrà piloso, pedibus concoloribus et auricomatis. Long. lin. 3, lat. lin. 2½.

Named in honour of Erichson, who has figured some singular genera allied to Pachypus, as well as to the above genus.

Sericesthis Gouldii, *Hope*. Affinis *S. abdominali*, Hope, at differt. Castaneo-pruinosa, capite anticè excavato, posticè convexo; thorace undique lineà elevatâ circumdato lateribus flavo-ciliatis. Elytris posticè rotundatis ultra medium incrassatis, striato-punctatis, striis parum impressis, disco sparsim punctulato; podice trigono et declivi; corpore infià concolori pectore pedibus flavis capillis longis obsitis, femoribus segmentisque abdominis rubro-piceis nitidis. Long. lin. 11, lat. lin. 5½.

The above insect is one of the largest species of my acquaintance; more than forty species have fallen under my notice; about thirty-five are in my collection. They would afford ample materials for a monograph. In bloom and colouring they resemble Serica, and to that genus they are certainly allied. Two other species were received from Port Essington with the above.

Liparetra nigricollis, *Hope*. Atra, capite anticè excavato, thorace convexo, nigro, elytris striato-punctatis piceis, pedibus concoloribus, pectore flavo-tomentoso. Long. lin. 3, lat. lin. 1½.

The present insect belongs to a genus of the family of the Sericidæ; it is rich in species, as my cabinet contains nearly twenty. There are some few other Lamellicornes in Mr. Gould's collection from Port Essington, but they are in too imperfect a state to describe.

Geodephaga.

Megacephala Australasiæ, *Hope*. Flava, antennis palpisque luteis, capite viridi; maxillis concoloribus, apicibus nigricantibus. Thorace æneo-viridi, anticè posticèque constricto, lineâque longitudinali fortiter impresso; elytris flavo-marginatis maculâ anchorali magnâ notatâ; corpore infrà viridi ternis segmentis antepenultimis piceis, apicali autem flavo, pedibusque concoloribus. Long. lin. 7½, lat. lin. 2½.

This is the first instance, I believe, of a Megacephala being described as inhabiting New Holland: apparently it varies considerably in magnitude.

Cicindela Ioscelis, *Hope*. Atro-ænea, capite æneo, fronte albido, antennis [xlvi.] violaceis; thorace bronzeo ferè bilobato, posticè constricto, elytris nigricantibus, lateribus externè trilunatis, maculis albidis notatis, septem punctis viridibus in singulo elytrorum ferè ad suturam positis; corpore infrà violaceo, femoribus, tibiis tarsisque concoloribus, tibiis autem ad basin flavo-maculatis. Long. lin. 3, lat. lin. 1¼.

The above elegant insect appears to be a form differing from any yet received from New Holland.

Carenum Smaragdulum, *Hope.* Viride, capite nigro, foveisque binis impresso, thorace virescenti semicirculari, margine omni elevatâ; elytris læte viridibus glabris nitidis, marginibus externis elevatis et auratis; corpore infrà piceo lateribus æneo-tinctis, pedibus concoloribus. Long. lin. 9, lat. lin. 2½.

This beautiful species I received lately from Western Australia, and now describe it, as it is apparently quite unknown. It is probable that Carenum will be found to be peculiar to New Holland. No true Scarites of my acquaintance is of any colour but black or brown.

Eutomus megacephalus, *Hope.* Cylindricus, niger, nitidus, capite maximo pronoto viridi, elytris lævibus cupreo-viridibus, tibiis anticis dente unico apicali externo. Long. lin. 8.

Ænigma (*Newm.*) cyanipenne, *Hope.* Atro-piceum, capite nigro punctulato, antennis tomentosis, quatuor primis articulis atris, reliquis fuscis; thorace cordato, anticè posticèque truncato, disco punctulato; elytris cyaneis, striato-punctatis, spatiis inter strias punctulatis; corpore infrà piceo, pedibus concoloribus. Long. lin. 7, lat. lin. 1½.

This species is the second that has hitherto been described. I consider it as a true Helluo.

Ænigma unicolor, *Hope.* Fusco-piceum, antennis tomentosis, thorace cordato punctulato, elytrisque subcostatis et striato-punctatis, corporeque infrà concolori. Long. lin 7, lat. lin. 1½.

As this species is also a native of New Holland, and is unknown to entomologists, it is here described, although it was not received from Port Essington.

Cyphosoma,* *n. g.*

Antennæ 11-articulatæ, articulo 1mo crasso, reliquis æqualibus. Clypeus protensus subemarginatus. Caput subquadratum fossulis binis inter oculus fortiter impressis. Thorax lateribus rotundatis, angulis anticis prominentibus. Elytra gibba. Palpi maxillares articulo 1mo brevi, 2do triplo longiori apice subincrassato, 3tio cylindrico apice truncato.

Cyphosoma unicolor. Capite nigro; antennis articulis 4 primis piceis, reliquis subtomentosis: thorace concolori, marginibus lateralibus elevatis, lineâ mediâ longitudinali anticè interruptâ, fossulâ utrinque fortiter impressâ; scutello [xlvii.] brevi; elytris gibbis, sulcatis; pedibus robustis, tibiisque subincurvis. Long. lin. 8½, lat. lin. 3.

Catascopus Australasiæ, *Hope.* Viridis, antennis fuscis; thorace hexagono lateribus marginatis concolori; elytris striato-punctatis; corpore infrà piceo, pedibus concoloribus. Long. lin. 4½, lat. lin. 1½.

This, I believe, is the first time that Catascopus has occurred in New Holland, and it is singular that the form of it approaches the species of Africa much more than those of India.

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* κύφος, *gibbus*, et σῶμα, *corpus*.

GNATHAPHANUS (*M. L.* ?) LICINOIDES, *Hope*. Niger, thorace fossulis posteà fortiter impressis, elytris sulcato-striatis, punctisque excavatis, corpore infrà atro nitido, tarsis infrà fusco-spongiosis. Long. lin. $5\frac{3}{4}$, lat. lin. $1\frac{3}{4}$.

I have little hesitation in regarding this insect as a true Gnathaphanus; it has not hitherto been found but in the island of Java.

CYRTODERUS*, *n. g.*

Antennæ 11-articulatæ, articulo 1mo quatuor proximis æquali, cylindrico, apice incrassato, subtruncato, reliquis ferè æqualibus. Mandibulæ apice subincurvatæ. Labrum quadratum medio productum subciliatum. Mentum transversum. Palpi maxillares ultimo articulo subsecuriformi, obliquè truncato. Palpi labiales ultimo articulo ferè trigono, valdè securiformi. Thorax subquadratus angulis posticis lateribusque rotundatis. Corpus gibbosum. Pedes robusti, tibiis spinosis.

CYRTODERUS AUSTRALASIÆ. Niger, antennarum articulis tribus primis piceis, reliquis pubescentibus; thorace lineâ mediâ longitudinali, anticè posticèque interruptâ, fossulâque utrinque retrorsum fortiter impressâ; scutello parvo vix distincto; elytris striatis interstitiis elevatis, marginatis, serie tuberculorum ad margines externos approximatâ; corpore subtùs nigro, tibiis spinosis. Long. lin. 8, lat. lin. $2\frac{1}{2}$.

HYDRADEPHAGA.

CYBISTER INSULARIS, *Hope*. Niger, capite integro convexo, oculis albis, thorace sub lente subtilissime punctato, marginibus exterioribus flavescentibus; elytris nigris flavo-marginatis, disco binis lineis punctorum haud fortiter impresso; corpore infrà nigro nitido, pedibus quatuor anticis flavo-ornatis, posticis atro-piceis. Long. lin. 8, lat. lin. $4\frac{1}{2}$.

This is the smallest species known, being scarcely larger than a Hydaticus.

COLYMBETES MONOSTIGMA, *Hope*. Ater, nitidus, elytris uno aurantio stigmate ornatis, corpore infrà nigro, pedibus rufo-piceis. Long. lin. $3\frac{1}{4}$, lat. lin. 2.

[xlviii.] HYDROPORUS COLLARIS, *Hope*. Nigro-piceus punctatus; thorace medio convexo, lateribus utrinque fortiter depressis; elytris subtilissime punctulatis piceis, corpore infrà pedibusque concoloribus. Long. lin. $1\frac{3}{4}$, lat. lin. $\frac{3}{4}$.

DINEUTES (*MacLeay*) GOULDII, *Hope*. Nigro-æneus nitidus, thoracisque elytrorumque margine flavo, elytris trispinosis, spinâ mediâ majori, binisque lateralibus minoribus; toto corpore infra luteo. Long. lin. $3\frac{1}{2}$, lat. lin. $1\frac{1}{2}$.

GYRINUS IRIDIS, *Hope*. Atro-æneus, elytris abruptè truncatis, striatis, purpurascentibus; corpore infrà æneo, pedibus piceis. Long. lin. $3\frac{1}{2}$, lat. lin. $1\frac{1}{2}$.

HYDROBIUS MARGINICOLLIS, *Hope*. Niger, lævis, margine postico thoracis rufo-piceo, corpore infrà nigro et pubescenti, segmentis abdominis utrinque maculâ rufescente notatis, pedibus piceis. Long. lin. $5\frac{1}{2}$, lat. lin. $2\frac{1}{2}$.

HYDROBIUS ASSIMILIS. Affinis præcedenti, at minor, toto corpore suprà nigro; elytris sub forti lente subtilissime punctulatis; corpore infrà nigro tomentoso, palpis tarsisque rufo-piceis, femoribus tibiis nigricantibus. Long. lin. 5, lat. lin. 2¼.

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* Κυρτὸς and δέρη. I know not where to place this genus; it seems allied to Zabrus, and unites in itself the characters of other families. I have also received it from Melville Island.

Sternoxi.

Agrypnus grandis, *Hope*. Niger, capite ferè quadrato auricomato, angulis anticis rotundatis; thorace convexo disco lateribus parum depressis; elytris atris striato-punctatis, corpore infrà concolori, pedibus piceis et auro-tomentosis. Long. lin. 15, lat. lin. 5.

The above is the only species of large dimensions; there are also seven others from Port Essington, but as they are not remarkable in any respect, and are allied to various undescribed species, I pass them by.

Longicornes.

Mallodon insulare, *Hope*. Castaneum, capite atro, antennis piceis, mandibulis denticulatis; thorace transversè quadrato, lateribus valdè serratis, disco varioloso punctato; elytris castaneis quibusdam lineis parum elevatis distinctis, corpore infrà rufo-piceo, pedibus atrioribus. Long. lin. 21, lat. lin. 6¼.

Plocæderus Australasiæ, *Hope*. Piceus, pubescentiâ griseâ tectus; thorace constricto rugoso; elytris bispinosis griseo piceoque colore irroratis; corpore infrà griseo-tomentoso, pedibus concoloribus tarsisque infra flavo-spongiosis. Long. lin. 10½, lat. lin. 2½.

There is one remarkable character apparently peculiar to this species; the male insect has the third and fourth joints of the antennæ subglobose: I can scarcely regard the appearance as a sexual distinction.

Monohammus mixtus, *Hope*. Cœnosus, colore nigrescenti marmoratus; thorace spinoso punctis sparsim notatis; elytris bispinosis concoloribus; corpore infrà grisescenti, tarsis suprà et infrà auricomatis. Long. lin. 11, lat. lin. 3½.

[xlix.] Stenochorus vicinus, *Hope*. Nigro-piceus, antennis pallidioribus, thorace tuberculato, spinis lateralibus vix distinctis; elytris piceis disco flavis maculis notato, guttâ flavâ ovali ante apicem positâ; corpore infrà fusco-griseo, pedibus piceis, femoribus incrassatis. Long. lin. 9, lat. lin. 2.

Stenochorus cruciger, *Hope*. Rufo-piceus, antennis pallidioribus, thorace tuberculato lateralibus spinis subacutis; elytris piceis disco in medio cruce flavâ notatis, apicibus concoloribus; corpore infrà rufo-piceo. Long. lin. 7, lat. lin. 1½.

Xystrocera Australasiæ, *Hope*; affinis *Xys. Indicæ*, Hope. Rufescens, thorace globoso, lineâ mediâ longitudinali vix notato; elytris rufo-castaneis viridi-æneis, vittâ fortiter punctatâ, femoribus atro-piceis. Long. lin. 11, lat. lin. 2½.

It is with hesitation that I give this insect as distinct from one received from Singapore; in sculpture, and in several minor points, it certainly differs from X. Indica, and the genus is now recorded for the first time as occurring in New Holland: it is singular that I have also lately received from Sierra Leone another species intimately allied to both of them.

Callidium Essingtoni (affine *Callid. obscuro*, Fab.). Brunneum, thorace lineâ longitudinali parum elevatâ, tuberculisque binis ferè mediis insignito; elytris vittâ albidâ, tuberculis variis per discum aspersis; corpore infrà griseo, pedibus pallidis. Long. lin. 4½, lat. lin. 1¼.

There is a third Callidium closely allied to the above, from the vicinity of Swan River.

RHYTIPHORA (*Serville*) PIPERITIA. Squamosa, nigro flavoque colore variegata; antennis plumosis articulis apicibus rufo-piceis; thorace punctato; elytris ad apicem abruptè truncatis, ad basin tuberculis majoribus nigris, aliis per totum discum aspersis; corpore infrà concolori. Long. lin. 8, lat. lin. 2¼.

This genus seems peculiar to New Holland; more than twenty species have fallen under my notice.

RHYTIPHORA TUBERCULATA. Grisea, antennis plumosis, thorace acutis spinis insignito, elytris bispinosis, ad humeros crebris tuberculis obsitis, disco in medio albo fuscoque colore notato; corpore infrà albido piloso. Long. lin. 7½, lat. lin. 2¾.

RHYTIPHORA DETRITA, *Hope*. Picea, capite flavo-piloso, antennis plumosis, thorace 2-tuberculato, elytris humeris prominentibus, dente elevato in singulo ferè ad basin posito; per totum discum suprà color piceus, lanugoque flava prævalet; corpore infrà concolori flavisque capillis obsito. Long. lin. 6, lat. lin. 1½.

Here three new species of Lamia ought to be introduced; unfortunately they are so changed in appearance by grease that it is well to pass them over.

RHAGIOMORPHA (*Newm.?*) UNICOLOR, *Hope*. Fusco-brunnea, antennis flavescentibus; toto corpore suprà et infrà fusco-brunneo et piloso, pedibus subflavis. Long. lin. 9, lat. lin. 2. [1.]

RHAGIOMORPHA PLAGIATA, *Hope*. Grisea, antennis flavis articulis ultimis crassioribus; thorace griseo-piloso; elytris concoloribus, punctulatis, maculâ magnâ flavâ inter humeros positâ, secundâ minore rotundatâ haud ad apicem positâ; corpore infrà griseis capillis obsito. Long. lin. 7, lat. lin. 1¾.

HATHLIA LACTEOLA, *Hope*. Alba, antennis rufescentibus et pilosis; thorace lineâ longitudinali piceâ notato punctato; elytris cretaceis ad basin punctatis apicibus subacutis, suturâ sensim elevatâ; corpore infrà griseo-testaceo, pedibus concoloribus. Long. lin. 6, lat. lin. 1¾.

HATHLIA 4-LINEATA, *Hope*. Rubro-picea, antennis concoloribus; thorace tribus lineis albidis notato, mediâ latiori, lateralibus minoribus; elytris 4-lineatis, lineis binis albidis externis, binisque suturalibus; corpore infrà piceo lanugine albidâ asperso, pedibus concoloribus. Long. lin. 5, lat. lin. 1½.

HATHLIA LINEELLA, *Hope*. Brunnea albidâ pubescentiâ tecta; antennis rufescentibus; thorace mediâ lineâ piceâ elevatâ, lineisque albidis utrinque notato; elytris apicibus subacuminatis, lineisque quatuor albidis, parum distinctis; corpore infrà concolori. Long. lin. 4, lat. lin. 1.

HATHLIA MELANOCEPHALA, *Hope*. Albida, antennis griseis, articulis nigro-maculatis; capite nigro, thorace anticè concolori, posticè albo; elytris apice acuminatis, striato-punctatis, lineis albidis insignitis; corpore infrà griseo, pedibus concoloribus. Long. lin. 3½, lat. lin. ¾.

The last four insects belong to the genus Hathlia of De Jean. I am doubtful if the characters are yet published, and of course if they are not the name in future may be changed by the describer.

Having finished the Longicornes I leave the remaining species from Port Essington for a continuation of the present paper.

Descriptions of the Australian species of Lamellicorn Beetles belonging to the family of the Sacred Beetles. By J. O. Westwood, F.L.S.

After noticing the Circellium hemisphericum, *Latr.* (*Guerin, Icon. R. An. Ins.* pl. 21, f. 3.—Coproëcus h., *Reich., Ann. Soc. Ent. France*, 1842, pl. 5, fig. 2), the

Aulacium carinatum, *Reich.* (Mentophilus Hollandiæ, *Laporte, Hist. Nat. Ins. Col.* 2, pl. 4, fig. 4), he describes the genus Tessarodon, *Hope*, in detail, giving characters of the type T. Hollandiæ and of the two following new species:—

TESSARODON ANGULATUS, *W.* T. subovalis obscurè castaneus, capite et prothorace rudè punctatis, clypeo in medio dentibus duobus conicis, lateribus ante oculos valdè angulatis, tibiis posticis ad apicem appendiculatis. Long. corp. lin. 3.—Hab. New Holland. Swan River? Mus. Hope.

TESSARODON PICEUS (*Hope, MSS.*). T. parvus subovalis castaneus, capite et prothorace rudè punctatis, capitis angulis ante oculos rotundatis, tibiis posticis [li.] simplicibus. Long. corp. lin. 2½.—Hab. Port Essington. New Holland. Mus. Hope.

Descriptions are then given of the two following new genera:—

CEPHALODESMIUS, *W.* Clypeus in medio 4-dentatus, dentibus intermediis valdè elongatis. Palpi labiales articulo 2do tumido, ovato, 3tio minuto. Prothorax magnus, 8-angularis. Elytra subcordata. Pedes valdè elongati. Tarsi antici distincti, breves. Tibiæ intermediæ bicalcaratæ, posticæ 1-calcaratæ.

CEPHAL. ARMIGER, *W.* Niger, capite nitido, punctato, pronoto subopaco, elytris opacis subsulcatis intra marginem lateralem acutè carinatis. Long. corp. lin. 5.—Hab. New Holland. Mus. Soc. Ent. Lond., &c.

TEMNOPLECTRON, *W.* Corpus breve subrotundatum nitidum. Clypeus in lobos duos minutos obtusos productus. Palpi labiales articulo 2do obconico, 3tio præcedenti dimidio breviori. Prothorax lateribus rotundatis (et cum elytris subcontinuis) anticè parùm angustior. Tarsi antici minuti. Tibiæ posticæ curvatæ, intermediæ 2-, posticæ 1-calcaratæ. Ungues subtùs denticulo instructi.

TEMN. ROTUNDUM. T. nigrum, nitidum, tibiis anticis obtusè bidentatis, singulo elytro striis 8 tenuissimis, striâ suturali punctatâ. Long. corp. lin. 5.—Hab. Melville Island. Mus. Hope.

Descriptions of two new species of Cremastocheilus, from Northern India. By W. W. Saunders, Esq., F.L.S.

CREMASTOCHEILUS CAMPBELLII, *S.* Jet-black, somewhat glossy, antennæ and trophi somewhat piceous. Head elongate-quadrate, slightly emarginate, thorax orbicular, closely and deeply punctured. Mesosternum prolonged, elytra rather broader than the thorax, elongate, deeply punctured and rounded at the apex, legs long. Length $\frac{6}{10}$ of an inch. Mus. Saunders.

CREMASTOCHEILUS BRUNNEUS, *S.* Head subquadrate, narrowed in front; antennæ black. Thorax more orbicular, with a deep impressed line thickly and deeply punctured, and dark pitchy brown. Mesosternum terminating in a strong, somewhat curved hairy spine. Elytra rather broader than the thorax, elongate; apex angular, slightly punctured, dark brown; legs long, pitchy brown. Length $\frac{5}{10}$ of an inch. Mus. Saunders.

[These two species enter into Burmeister's new genus, Cœnochilus, all the species of which hitherto described are natives of Southern Africa.—J. O. W.]

In allusion to Mr. Hope's observations on the habits of the Australian Coleoptera, Mr. Edward Doubleday mentioned that he had observed with great surprise, when in North America, that several tribes of insects appeared to possess habits quite at variance with those of the European species of the same groups, Ips (for example) being coprophagous, and Onthophagus found under carrion.

[lii.] December 6th, 1841.—W. W. Saunders, Esq., F.L.S., President, in the Chair.

Mr. S. Stevens exhibited British specimens of Notaris Serpi, a Curculionideous insect new to the British Fauna, which he had obtained from bullrushes at Hammersmith; also various other insects found in bullrushes, and a new species of Omias from Ascham Bryant, Yorkshire.

Captain Parry exhibited a small collection of Coleoptera from New Zealand, including a new genus of Lucanidæ, and many curious Longicornes, upon which Mr. Hope made various remarks.

Mr. Westwood exhibited the Coleopterous portion of Mr. Coffin's collection of Mexican insects, and various insects from Sierra Leone from the collection of Mr. Raddon.

Mr. J. Gould exhibited a large and very beautiful wasp's nest, formed by Vespa holsatica in a glazed case, accompanied by a note from Mr. Elliott, detailing the manner of its formation; the case having been placed on the top of a steam-boiler, and some portions of the comb containing grubs, and a number of perfect wasps having been introduced into the case, and an aperture formed at the back for the ingress and egress of the wasps which immediately covered in the grubs, and finished the nest in about five weeks. Mr. Hope stated that he had noticed that wasps are very partial to situations near to chimneys.

A cocoon of very beautiful silk resembling molten gold threads from the Philippine Islands was presented by H. Cuming, Esq.

The following memoirs were read:—

Descriptions of two new genera of Curculionidæ, closely allied to Rhynchites. By G. R. Waterhouse, Esq., of which the following are the characters:—

Minurus, *Wat.* Rostrum elongatum ad apicem dilatatum. Antennæ elongatæ tenues versus medium rostri insertæ, 11-articulatæ, articulis basalibus subæqualibus; 3bus ultimis remotis, clavam formantibus. Caput elongatum, collo crasso. Thorax subcylindricus basi apiceque truncatus. Elytra oblonga, abdomen tegentia.

Minurus testaceus, *Wat.* Testaceus, oculis nigris capite thoraceque punctatis, elytris profundè punctato-striatis. Long. corp. lin. $1\frac{1}{6}$.—Hab. Chiloe.

Metopon, *Wat.* Rostrum elongatum ad apicem subdilatatum. Antennæ tenues ad basin rostri insertæ, 11-articulatæ, articulis basalibus subæqualibus, tribus ultimis clavam subsolidam formantibus. Caput latum pone oculos paullò elongatum. Oculi laterales rotundati prominuli. Thorax transversus, basi apiceque truncatus. Elytra oblongo-ovata, humeris subrectangulis.

Metopon suturalis, *Wat.* M. testaceus, punctatus, scutello nigro, elytris ad suturam nigricantibus. Long. corp. lin. $1\frac{1}{3}$.—Hab. Van Diemen's Land.

[liii.] Description of a New Species of Parastasia. By J. O. Westwood, F.L.S.

Parastasia rufo-picta, *W.* Nigra nitida tenuissimè punctata, fasciâ irregulari ad basin singuli elytri, anticè biramosa, et posticè in medio latè emarginata, pygidio piceo, opaco. Long. corp. lin. 11.—Hab. Sylhet, East India. Mus. D. Parry.

Notice of a hitherto unobserved character distinguishing the sexes in certain Cetoniidæ, consisting of a strong spine at the extremity of the lower lobe of the maxillæ in the females. By J. O. Westwood, F.L.S. (since published in the 'Annals of Natural History').

January 3rd, 1842.—W. W. SAUNDERS, Esq., in the Chair.

The following memoirs were read:—

On Aporocera, a new genus of Coleoptera allied to Clythra, from New Holland. By W. W. Saunders, Esq.

APOROCERA, *S.* Antennæ two-thirds of the length of the body, 11-jointed, the 3rd and following joints subtriangular, broad and flattened, the 5th being somewhat the largest and broadest. Thorax gibbous in front, as broad as the elytra. Body cylindrical.

AP. BICOLOR, *S.* Head red-brown; antennæ black; thorax smooth, shining, deep reddish brown, with a transverse furrow. Scutellum and elytra black shining green, deeply and coarsely punctured in regular striæ, each elytron with a deflexed lateral humeral lobe; legs reddish brown, with the tips of the femora and tibiæ and the tarsi black. Length ¼ inch.—Hab. New South Wales. Mus. Hope.

AP. APICALIS, *S.* Head red-brown; antennæ rather shorter and more slender than in the preceding. Thorax red-brown, as broad as the elytra, with a wide transverse furrow. Scutellum and elytra red-brown, the latter deeply and coarsely punctured in regular striæ, with the apex black; each elytron with a deflexed lateral humeral lobe. Legs red-brown, with the tips of the femora and tibiæ and the tarsi black. Length ¼ inch.—Hab. New South Wales. Mus. Hope.

Some account of the natural history of a fossorial hymenopterous insect from Port Lincoln, South Australia. By J. O. Westwood, F.L.S.

The insect in question is a new species belonging to the Pompilidæ, and apparently to that division of Pompilus allied to Aporus in the large size of the collar.

P. AUDAX, *W.* P. ater, pubescens, prothorace magno, quadrato, antennis albis, tibiis tarsisque fusco-albidis. Long. corp. lin. 5½.

Specimens of this insect in the pupa state (almost fully developed) were found in the cells, each of which was about an inch long and half an inch in diameter: several [liv.] of these cells were attached together, and seemed formed of a succession of short transverse layers of a shining material which had dried into rounded or elongated nodules. It appeared evident that these nests had not been enclosed in a burrow, but were external, the materials having been brought from a distance; thus differing from the habits of the majority of the family. In one of the cells the remains of a very large spider, which had evidently served as the food of the enclosed larva, were found.

Mr. Newport communicated extracts from various letters which he had received from Mr. Wheekes, of Sandwich, detailing a series of galvanic experiments whereby he had obtained specimens of Acarus hystrix (or A. Crossii) from mineral solutions acted upon by voltaic currents, in the same manner as Mr. Crosse had obtained the same insect. In this case distilled water had been used, the mineral had been previously submitted to a white heat, and the apparatus had been insulated by being placed in mercury; notwithstanding which a number of the Acari had been produced. Mr. J. E. Gray stated that Mr. Children had also instituted a series of experiments at the British Museum precisely similar to those of Mr. Crosse, without obtaining a single Acarus.

February 7th, 1842.—W. W. Saunders, Esq., in the Chair.

Mr. Westwood exhibited two extremely rare British Noctuidæ from the collection of Mr. T. Reeves, jun., of Carlisle; namely, Agrotis cinerea, a beautiful variety, with the ground colour of the fore wings of a more fulvous-brown hue than in Mr. Curtis's figure, the base darker, and the bar across the middle of the wing dark brown, the hind wings with a slight fascia running across them entirely; and Graphiphora depuncta, a species which had been hitherto doubtful as British.

The following memoirs were read:—

Descriptions of two new Coleopterous genera allied to Cryptocephalus, from New Holland. By W. W. Saunders, Esq.

Mitocera, *S.* Antennæ $\frac{1}{3}$ as long again as the body, filiform, 2nd joint small, 3rd and 5th very long, equal, 4th half as long as the 3rd. Eyes reniform. Head vertical; thorax subquadrate; body subelongate, flattened.

Mitocera viridipennis, *S.* Head light red-brown, with the crown and antennæ black. Prothorax red-brown, with slightly raised lateral margins, coarsely punctured. Scutellum and elytra dark shining blue-green, and irregularly punctured; apical margins red-brown. Legs black; femora red-brown. Length $\frac{3}{10}$ inch.—Hab. Swan River. Mus. Hope.

Dicenopsis, *S.* Body short, robust, cylindrical. Antennæ short, not half the length of the body, subclavate, 3rd, 4th and 5th joints slender and long, the remainder short, forming a kind of lengthened club. Head vertical; eyes reniform. Thorax rounded in front, very convex.

[lv.] Dicenopsis hæmatodes, *S.* Shining brownish-red, deeply and coarsely punctured; clava of antennæ black-brown; legs brownish red, apex of tibiæ and the tarsi black. Length $\frac{7}{20}$ inch. Hab. New Holland and Van Diemen's Land. Mus. Hope and Westwood.

Descriptions of some new Longicorn and Rhynchophorous Beetles from the Philippine Islands. By G. R. Waterhouse, Esq.

Doliops (*Waterh.*) geometrica, *Wat.* D. splendidè viridi-æneus, capite lineis tribus; thorace lineis marginalibus et suprà tribus (unâ abbreviatâ) notato; elytris lineis duabus transversis mediis; areâque transversâ basali irregulari; alterâque triangulari apicali lineis circumdatis, his lineis albo-squamosis. Long. corp. lin. 6½.

Pachyrhynchus rufo-punctatus, *Wat.* P. niger, brevis, capite maculis tribus, thorace maculis duabus discoidalibus maculâque unâ ad utrumque marginem; elytris guttis 22 rufo-squamosis ornatis. Long. corp. lin. 8½. Nearly allied to P. venustus.

Pachyrhynchus elegans, *Wat.* P. splendidè cupreus, capite maculis 3, thorace 2 discoidalibus, unâque ad utrumque marginem; elytris maculis 10 magnis subocellatis pallidè viridi-squamosis.

Pachyrhynchus latifasciatus, *Wat.* P. splendidè æneus, thorace fasciâ transversâ, elytris fasciis 2 (in medio interruptis) maculisque 3 apicalibus viridi-squamosis. Long. corp. lin. 6.

Pachyrhynchus concinnus, *Wat.* P. ater, elytris punctato-striatis; thorace medio lineâ transversâ lineâque longitudinali posticâ; elytris lineâ transversâ centrali, lineis duabus longitudinalibus, et lineâ marginali; his lineis pallidè viridibus. Long. corp. lin. 6. Resembles P. chlorolineatus.

Description of a new British genus of Apterous insect. By J. O. Westwood, F.L.S., &c.

The insect described in this paper had been already brought before the Society (see Journal of Proceedings, November 2nd, 1840), when it was regarded by Mr. Westwood as an undeveloped Myriapodous insect. The researches of Mr. Newport upon the development of the Myriapoda, subsequently published, having shown the incorrectness of this opinion, Mr. Westwood refers the insect to the order Thysanura (from all of which it differs generically) under the name of

Campodea, *W.* Corpus elongatum parallelum, depressum, molliusculum apterum 13-annulatum. Caput obovatum horizontale. Antennæ 2 elongatæ multi-articulatæ, submoniliformes. Os inferum mandibulis minutis planis latis 4-dentatis. Prothorax brevis, meso- et metathorax majores æquales. Pedes 6, elongati, cursorii. Abdomen segmentis subtus utrinque appendiculo minuto apiceque setis duabus elongatis setosis instructum.

Campodea staphylinus, *W.* Alba, mollissima, agilis, antennis articulis ultra 20 [lvi.] instructis. Long. corp. lin. 2½. Inhabits damp garden earth. Hammersmith, October 2, 1840. July 12, 1842.

Catalogue of the entomological collections, with notes on the habits of the species found in Chusan and the adjacent parts. By Dr. Cantor.

March 7th, 1842.—W. W. Saunders, Esq., F.L.S., President, in the Chair.

Mr. Boreham exhibited some curious varieties of Hipparchia Janira, and Mr. S. Stevens a number of minute Coleoptera, collected from moss during the preceding winter.

The Rev. F. W. Hope exhibited a specimen of a new and coarse kind of white silk, communicated by Mr. Strachan. He also read some extracts from a letter received by him from Mr. Fortnum, Corr. Memb. E. S. at Adelaide, in South Australia, containing many observations on the Entomology of that district.

Mr. Westwood exhibited specimens of Uropoda vegetans, which had been found in countless multitudes on the surface of the ground in a cucumber-frame, and which attached themselves to a beetle introduced into the frame.

The following memoirs were read:—

Continuation of a memoir on the Chrysomelidæ of New Holland allied to Cryptocephalus. By W. W. Saunders, Esq., President, containing detailed descriptions of the following insects:—

Ochrosopsis, *n.g.*, divided from Anodonta. Eyes reniform. Antennæ as long as the body, 11-jointed; 1st joint robust, clavate; 2nd small, obconic; 3rd, 4th and 5th of nearly equal length; 4th shortest, the remainder gradually decreasing in size. Thorax rounded in front, transverse, nearly as broad as the elytra. Elytra half as long again as broad. Legs moderate. Colour pale.

Ochrosopsis vermicularis. Reddish brown; thorax and elytra fulvous, rugose, with the impressed punctures black, those on the elytra forming irregular striæ; legs light rufous-brown. Length $\frac{3}{16}$ inch.—Hab. New Holland. Mus. Hope.

Ochrosopsis australis. Head ochre-yellow; antennæ dusky brown; thorax shining reddish brown, with a longitudinal band and two faint oblique bands of fulvous, with large black impressions; scutellum dark brown; elytra fulvous, with large irregular impressions; beneath pale ochre-yellow; legs dusky fulvous. Length $\frac{5}{20}$ inch.—Hab. Swan River. Mus. Hope.

Ochrosopsis erosa. Head ochre-yellow; antennæ black; thorax shining fulvous, with coarse black impressions forming two blackish patches; scutellum black; elytra pale ochre-yellow, with deep and irregular black punctures, which are [lvii.] occasionally confluent; legs light reddish brown. Length $\frac{2}{10}$ inch.—Hab. Swan River. Mus. Hope.

Ochrosopsis melanocephala. Head ochre-yellow, with the vertex and a central line black; antennæ black; thorax ochre-yellow, with a small oblong patch near the hinder angles, and a large triangular patch on each side in front black and punctured; scutellum black; elytra shining ochre-yellow, with dark brown punctures; legs reddish brown; tips of femora, tibiæ and tarsi black. Length $\frac{2}{10}$ inch.—Hab. New Holland. Mus. Hope.

Aporocera chalybea. Head dark chestnut-brown, mouth ochre; antennæ black; thorax pitchy black, with ochreous margins deeply punctured; scutellum black; elytra shining chalybeate blue, deeply punctured; legs pale ochre-yellow, with the tips of the tibiæ and tarsi black. Length $\frac{3}{10}$ inch.—Hab. Port Essington. Mus. Hope.

"Notes upon the genus Hylæus, and on Cryptus bellosus and other insects." By G. H. K. Thwaites, Esq., M.E.S.

In this communication (addressed to the Secretary) Mr. Thwaites states, that he discovered in the preceding summer that Hylæus is not parasitical, having reared several individuals of two species from bramble sticks, the holes in which exactly corresponded with the size of the insects, and were much too small for any other bee likely to be found in such a situation except Heriades, which does not occur in the neighbourhood of Bristol. Great care is taken by Mr. Thwaites in cutting away the wood of bored sticks so as to expose the cocoons, which are carefully watched, so that the insect escaping from each is at once detected.

It is desirable, Mr. Thwaites adds, to discover upon what kind of food the larva of the Hylæus is fed, and if on pollen, how the parent insect conveys it to its nest. Both Hylæus and Ceratina emit, when captured, a considerable quantity of sticky fluid from the mouth; but they can scarcely convey pollen to their nidi by means of a capacious stomach. The cocoons of the Hylæus are arranged regularly end to end, and the upper ones produce males, which come out first. Mr. Thwaites has also reared a new species of Hylæus allied to H. dilatatus, *K.*, from bramble sticks.

Mr. Thwaites has reared Cryptus bellosus from a cocoon in a hole much too small for Epipone levipes, and which he believes to be that of a new species of Trypoxylon which he has discovered near Bristol.

Upon reading Mr. Dale's account of the curious mode in which a Stylops acted when a bee was placed under the glass in which it was confined, it occurred to Mr. Thwaites that the Stylops may perhaps lay its eggs on the body of the bee, and that they may be introduced into the nest by being brushed off with the pollen. If the bees not infested come out later than the others, the above idea cannot be true; but it is possible that he may have been deceived, and that the bees he observed later [lviii.] may not have been the same species. The Stylopized and other Andrenæ (mentioned in Mr. Thwaites's short article in Trans. Ent. Soc., vol. iii. p. 67), appear to have been introduced in his garden with some mould brought there some months previously, as none had appeared since last year.

"Memoir on the genus Hylæus, with descriptions of several new British species." By Mr. F. Smith, who also stated that he had reared Cryptus bellosus from the nests of more than one species of bee. The following are the new species described in this memoir:—

Hylæus cornutus, *Kirby MSS.* ♀ This species is remarkable for the two teeth and frontal prominence which arm the clypeus; antennæ fulvous beneath, posterior tibiæ annulated with yellow.—Cove Common, Hants. Mus. Ent. Soc. London, and Smith.

Hylæus plantaris, *Smith.* ♂ Black; plantæ of the intermediate legs dilated at the base; antennæ yellow, short, with the scape considerably dilated in males, with a black streak above; thorax with a yellow spot on each side of the collar. Length 3 lines.—Cove Common, Hants. Mus. Smith.

Hylæus pallidens, *Kirby MSS.* ♂ Black; scape of antennæ with a yellow line in front; face white; mandibles yellow; anterior tibiæ yellow; fore femora with a yellow line in front; abdomen piceous, with a fringe of white hair on each side of the first segment. Length 3 lines.

Hylæus punctulatissimus, *Smith.* ♀ Black, with a cream-coloured stripe close to the eyes; antennæ black; thorax coarsely punctured, varied with pale yellow; abdomen with a fringe of white hair on each side of the first segment. ♂ H. annularis, var. γ, *Kirby.* Taken in company together at Coombe.

Hylæus hyalinatus, *Smith.* ♀ Head and thorax black, very minutely punctured with deeper punctures intermixed; antennæ black; wings hyaline; legs black, posterior annulated with yellow. ♂ Black; face yellow, scape of antennæ black, remaining joints fulvous beneath; thorax with a yellow spot on the tegulæ and tubercles; wings hyaline. Length 2 lines.—Received from Mr. Thwaites.

"Descriptions of some new exotic genera belonging to the family of the Sacred Beetles." By J. O. Westwood, F.L.S.

Retaining Canthon viridis, *Klug.*, as the type of Epilissus, *Dej. Cat.*, Mr. Westwood considers Circellium nitidum, *Lap. Hist. Nat. Ins. Col.* ii. p. 66, from Madagascar, as the type of a separate subgenus under the name of

Arachnodes, *W.* Mentum basi latius, lateribus convergentibus, apice haud emarginato. Palpi labiales graciles. Prothorax lateribus pone medium valdè angulatis et reflexis. Pedes valdè elongati, femoribus longis haud compressis. Tarsi articulo ultimo subtùs ad apicem in spinam parvam producto.

Nanos, *W.* Antennarum clava brevis, subrotundata. Mentum in medio latius, [lix.] anticè valdè emarginatum. Palpi labiales brevissimi crassi. Prothorax lateribus ferè rotundatis haud reflexis. Pedes parùm elongati, tibiis curvatis.—Type Circellium pygmæum, *Laporte.* Madagascar.

Macroderes, *W.* Corpus ferè hemisphericum, clypeus emarginatus. Mentum subtriangulare anticè profundè fissum. Prothorax maximus lateribus rotundatis, anticè utrinque obsoletè retusus. Elytra levissime striato-punctata. Tibiæ posticæ apice dilatatæ, tarsi articulo basali magno compresso triangulari.—Type Onthophagus Greeni, *Kirby.* Cape of Good Hope.

Uroxys, *W.* Corpus oblongum subdepressum, elytris posticè acuminatis. Clypeus anticè acutè bilobus. Mentum subquadratum, anticè parùm emarginatum. Palpi labiales articulis longitudine ferè æqualibus. Prothorax lateribus in medio angulatis. Pedes antici elongati, tibiis (in uno sexu) depressis intùs angulatis. Tarsi 4 postici articulis magnitudine decrescentibus.

UROXYS CUPRESCENS, *W.* U. cupreo- seu violaceo-nigricans, nitida lævissime punctulata, antennis rufescentibus, elytris striis 8 leviter punctatis, tarsis piceis. Long. corp. lin. 4¾. Hab. Colombia.

SCATONOMUS (*Erichson*) MYRMIDON, *W.* S. subcylindricus, niger, capite et pronoto viridibus nitidis, clypeo profundè emarginato, in sinu acutè bidentato; elytris leviter striatis; prothoracis angulis posticis prominentibus. Long. corp. lin. 2. —Hab. Cayenne.

SCATONOMUS SMARAGDINUS, *W.* S. brevis, subcylindricus, smaragdinus; capite anticè profundè emarginato in sinu obtusè bidentato; elytris leviter striatis; tibiis 4 posticis angustioribus; prothoracis angulis anticis in lobum parvum productis. Long. corp. lin. 2¼.—Hab. Brazil. Mus. Gory.

ANOMIOPUS, *W.* Corpus oblongum subconvexum, pedibus latissimis. Mentum ovale basi truncatum, anticè vix emarginatum. Palpi labiales breves articulis sensim minoribus. Clypeus bidentatus. Prothorax lateribus rotundatis. Elytra marginata striisque impressa. Tarsi posticè latissimi.

ANOMIOPUS VIRESCENS, *W.* A. æneo-virescens, dentibus duobus clypei obtusis, capite pronoto et elytris tenuissime et irregulariter punctulatis; elytris striato-punctatis; punctis vix distinctis; tibiis 4 posticis in medio prominulis; tibiis anticis ad basin externè 4-serratis. Long. corp. lin. 3½.—Hab. Brazil.

ANOMIOPUS NIGRICANS, *W.* A. æneo-niger, dentibus clypei acutis parallelis; fortius punctatus; punctis duobus parvis inter oculos; elytris paulò longioribus cyaneo-nigris, striis profundis; pedibus anticis castaneis; tibiis anticis basi externè 7-denticulatis; tibiisque posticis in medio haud prominulis. Long. corp. lin. 2½. —Hab. Brazil.

"Descriptions of the Coleopterous insects sent to England by Dr. Cantor from [lx.] Chusan and Canton, with observations on the Entomology of China." By the Rev. F. W. Hope, F.R.S., &c.

The following are the characters of the new species described in this paper:—

Sp. 1. LUCANUS CONFUCIUS, *Hope.* ♂ Niger nitidus, mandibulis capite thoraceque ferè æqualibus; caput depressum, clypeo in medio producto, flavo-ciliato; thorace transversè oblongo, angulis posticis obliquè truncatis, granulato. Long. lin. 28, lat. lin. 7.

Sp. 2. COPRIS SINICUS, *Hope.* ♂ Niger exscutellatus, thorace prominentiâ duplici, cornu capitis erecto intùs ad basin 2-denticulato. Long. lin. 10, lat. lin. 5¼. Allied to C. Sabæus, *Fab.*

Sp. 3. COPRIS SINENSIS, *Hope.* Mas adhuc latet. Niger exscutellatus, clypeo emarginato, capite tuberculo lato armato, elytris striato-punctatis. Long. lin. 9, lat. lin. 4½.

Sp. 4. ONTHOPHAGUS SINICUS, *Hope.* Niger, antennis luteis, clypeo integro, capite cornu tauriformi; thorace punctulato; elytris striato-punctatis, interstitiis disci punctatis. Long. lin. 4¼, lat. lin. 2¼.

Sp. 5. DIPELICUS CANTORI, *Hope.* Piceus, capite anticè trigono, posticè cornu elevato triangulari; thorace convexo, varioloso punctato, marginibus undique elevatis; elytris lineato-punctatis. Long. lin. 19, lat. lin. 8¾.

Sp. 6. MIMELA DOWNSII, *Hope.* Affinis *Mimelæ glabræ*, Hope, at minor. Viridis glabra infrà aurato-viridis; antennis atro-virescentibus, mesosterno abruptè truncato. Long. lin. 6, lat. lin. 3.

Sp. 7. Popillia Maclellandi, *Hope.* Castanea, capite punctulato, thorace glabro cupreo, elytris castaneis podice atro, maculis duabus flavis e pilis brevibus formatis. Long. lin. 7, lat. lin. 3¼.

Sp. 8. Popillia castanoptera, *Hope.* Castanea, clypeo integro punctato parùm reflexo, viridis; thorace concolori crebrissimè punctulato, fossulâ utrinque impressà; scutello punctato; elytris pallidè castaneis, striato-punctatis. Long. lin. 5, lat. lin. 2½.

Sp. 9. Holotricha Sinensis, *Hope.* Picea, clypeo emarginato, thorace convexo pruinoso, fossulâ utrinque impressâ, marginibusque externè subserratis; elytris rubro-piceis punctatissimis, corpore infrà concolori. Long. lin. 10, lat. lin. 4½.

Sp. 10. Holotricha plumbea, *Hope.* Pruinosa, capitis clypeo ferè integro; thorace convexo punctulato, lateribus sub lente parùm subserratis; elytris plumbeo-piceis punctatis. Long. lin. 10¾, lat. lin. 4¼.

Sp. 11. Serica Sinica, *Hope.* Atro-plumbea, clypeo integro, anticè punctulato, posticè glabro; thorace marginibus parùm elevatis; elytris plumbeis seu atro-pruinosis lineolatis. Long. lin. 4, lat. lin. 2¼.

Sp. 12. Agrypnus orientalis, *Hope.* Affinis *A. cœnoso*, Hope, at major.
[lxi.] Fuscus flavisque capillis aspersis; clypeo integro auricomo; thoracis angulis anticis obtusis, disco in medio 2-tuberculato. Long. lin. 9, lat. lin. 3.

Sp. 13. Ludius crocopus, *Hope.* Fuscus, antennis concoloribus; thorace angulis posticis valdè acutis, tomentoso; elytris striatis, striis sub lente parùm punctatis. Long. lin. 7, lat. lin. 2.

Sp. 14. Ludius luteipes, *Hope.* Affinis *L. Umbricolæ*, Eschscholtz, at minor. Niger, antennis flavescentibus; thorace albo-tomentoso; elytris striato-punctatis nigricantibus. Long. lin. 5¼, lat. lin. 1½.

Sp. 15. Ludius 4-lineatus, *Hope.* Castaneus, thorace nigro, elytris quatuor lineis nigris insignitis, antennis nigris, capite concolori, thorace atro capillis flavis asperso. Long. lin. 4½, lat. lin. 1¼.

Sp. 16. Colophotia flavida, *Hope.* Affinis *C. præustæ*, Eschscholtz. Flava, capite atro, oculis magnis; thorace convexo concolori, angulis posticis subacutis, medio disci lineâ fortiter impressâ insignito; elytris flavescentibus apicibus subfuscis. Long. lin. 4½, lat. lin. 1½.

Sp. 17. Lycus Cantori, *Hope.* Aurantius, antennis fusco-nigris; thorace flavido cruce nigricante insignito; elytris latis aurantiis substriatis. Long. lin. 3¼, lat. lin. 1.

Sp. 18. Nacerdes Chinensis, *Hope.* Flava, capite nigro, antennis duobus primis articulis fuscis, reliquis flavescentibus; thorace cum elytris concolori nigris. Long. lin. 5½, lat. lin. 1¼.

Sp. 19. Lagria nigricollis, *Hope.* Flava, antennis capite thoraceque nigris, elytris pallidè castaneis villosis, corpore infrâ piceo, pedibus concoloribus. Long. lin. 3, lat. lin. 1¼.

Sp. 20. Hamaticherus Cantori. Affinis *Hamatich. Paridi*, Wied. Magnus, fusco-brunneus, sericeus, elytrisque corpore longioribus; capite porrecto fronte foveolatâ, thorace fortiter rugoso utrinque armato, lineà mediâ longitudinali valdè incisâ. Long. lin. 26, lat. lin. 6½.

Triachys, *Hope.* Genus novum *Hamatichero* affine. Caput porrectum, fronte rugosâ. Antennæ 11-articulatæ; articulo 1mo crasso, valdè rugoso; 2do minimo; 3tio, 4to et 5to in mare spinis armatis, quinque sequentibus gradatim longioribus et inermibus, externo longissimo ternis præcedentibus haud æquali, thorax utrinque armatus.

Sp. 21. TRIRACHYS ORIENTALIS. Magnus brunneus et aurato-sericeus; antennis piceis, thorace utrinque armato et rugoso, dorso binis sulcis longitudinaliter impressis. Long. lin. 21, lat. lin. 6¼.

Sp. 22. MONOHAMMUS ALTERNATUS, *Hope*. Affinis *M. Dentatori*, Fab., at minor. Griseo-brunneus, thorace spinoso, elytris cinereo brunneo glaucoque nebulosis, corpore infrà concolori. Long. lin. 10, lat. lin. 3¼.

Sp. 23. OPLOPHORA HORSFIELDII. Nigra, antennis albo-cingulatis; thorace utrinque spinoso atro, lineis binis flavis longitudinalibus insignito; elytra duo-
[lxii.] decim maculis flavis notata. Long. lin. 20, lat. lin. 8.

Sp. 24. CASSIDA PIPERATA, *Hope*. Flava, antennis concoloribus, quatuor ultimis articulis nigricantibus; thorace ferè hyalino flavo, maculâ minutà nigrà in medio disci positâ; elytris flavis disco nigro-piperato. Long. lin. 2¼, lat. lin. 1⅜.

Sp. 25. CLYTHRA NIGRIFRONS. Aurantia, capite nigro, thorace flavo immaculato; elytris rubro-flavis, humeris atro-maculatis fasciàque nigro-violaceâ ante apicem positâ. Long. lin. 3, lat. lin. 1½.

Sp. 26. COCCINELLA 18-SPILOTA. Flava, binis maculis irregularibus nigris notata, elytris 18-spilotis, maculâ scutellari communi. Long. lin. 3¼, lat. lin. 2¼.

Sp. 27. COCCINELLA SUCCINEA. Succineo-flava, thorace pallidiori, maculis quatuor in medio disci nigris; elytris immaculatis, corpore infrâ flavo, pedibus concoloribus. Long. lin. 3, lat. lin. 2.

Sp. 28. COCCINELLA TETRASPILOTA. Flava, thorace anticè flavo, posticè nigro; elytris pallidê flavis, suturâ nigricanti, maculâ rotundatâ nigrâ ad humeros positâ, secundâ formâ irregulari ferè ad medium disci locatâ. Long. lin. 2¼, lat. lin. 1¼.

Descriptions of the new Coleoptera from Canton:—

Sp. 1. MELOLONTHA CHINENSIS. Affinis *Mel. Nepalensi*, Hope. Castanea, thorace colore saturatiori inquinato albisque capillis irrorato; elytris testaceis, lateribus externè sulcatis et atro-marginatis. Long. lin. 18, lat. lin. 8¼.

Sp. 2. ANOMALA CONTROVERSA, *Hope*. Castanea, capite piceo, margine anteriori parum elevato, antennis testaceis; thorace flavo-castaneo punctato, maculis magnis binis nigris insignito, alteràque minori utrinque in marginibus locatâ; elytris striato-punctatis, flavo piceoque colore variegatis. Long. lin. 6½, lat. lin. 3.

Sp. 3. GALBA CHRYSOCOMA, *Hope*. Flava, capite nigro, antennis pectinatis atris, thorace anticè rotundato, angulis posticis acutis, disco 4-tuberculato, tuberculis auratis capillis tectis, elytris aureo-tomentosis fuscis. Long. lin. 8, lat. lin. 2½.

Sp. 4. HARPALUS SINICUS. Niger, capite anticè rubro-piceo, posticê atro-nitido, antennis rufo-fuscis pilosis; thorace lateribus rufo-marginatis, posticê parùm punctulato; elytris striatis. Long. lin. 7, lat. lin. 2.

Sp. 5. AMARA ORIENTALIS. Nigra, antennis rufis, thorace rufo-marginato, elytris striato-punctatis pedibusque rufo-testaceis. Long. lin. 3, lat. lin. 1.

Sp. 6. HARPALUS CYANESCENS, *Hope*. Niger, capite concolori, antennis duobus articulis primis testaceis, reliquis fusco-nigris; thorace atro, margine omni flavo;
[lxiii.] elytris striato-punctatis, medio disci cyaneo, suturâ flavcolâ, ternis lateralibus striis flavis. Long. lin. 4½, lat. lin. 1¼.

Sp. 7. Harpalus difficilis, *Hope*. Atro-æneus, antennis fuscis, thorace flavo-marginato, elytris striatis atro-æneis, apicibus testaceis; corpore infrà piceo, pedibus flavescentibus. Long. lin. 3, lat. lin. ¾.

Sp. 8. Harpalus Trechoides, *Hope*. Fusco-flavus, antennis binis primis articulis testaceis, reliquis atris; thorace brunneo, margine omni flavo; scutello concolori; elytris fusco-brunneis, suturâ marginibusque externis flavescentibus. Long. lin. 2½, lat. lin. ¾.

Sp. 9. Coptodera bicincta, *Hope*. Flava, capite rufo antennisque rubris; thorace nigro; elytris nigris binis fasciisque flavis insignitis. Long. lin. 2, lat. lin. ½.

Sp. 10. Haliplus Sinensis. Flavus, capite rufo, thorace luteo binisque maculis punctis insignito; elytris pallide flavis striato-punctatis, punctis nigris, maculisque quatuor majoribus in medio disci positis, suturâ nigricante. Long. lin. 1¾, lat. lin. 1.

Sp. 11. Hydrobius neglectus. Fulvus, capite rufo, thorace pallidiore; elytris fusco-flavis striatis; corpore infrà nigro, pedibus flavo-piceis. Long. lin. 2, lat. lin. 1. .

Sp. 12. Upis Sinensis, *Hope*. Niger opacus, thorace punctulato angulis anticis lateribusque parùm rotundatis; elytris varioloso-punctatis, punctis fortiter insculptis. Long. lin. 8, lat. lin. 2¾.

Sp. 13. Amarygmus carbonarius. Niger, capite fronte foveolatâ, thorace convexo lateribus elevatis; elytris striato-punctatis nigris. Long. lin. 8½, lat. lin. 3½.

Sp. 14. Epilampus pulcher. Cupreo-æneus, antennis nigris; thorace atro-æneo cupreoque colore tincto; scutello atro; elytris striatis aurato-viridibus puniceoque colore inquinatis. Long. lin. 4½, lat. lin. 2.

Sp. 15. Epilampus chrysostictus. Nigro-æneus, capite suprà fortiter impresso, thorace atro marginato, maculâ mediâ auratâ, lateribus aureolâ falcatâ lunâ utrinque insignitis. Long. lin. 5¼, lat. lin. 2.

Sp. 16. Apate rejecta, *Hope*. Nigra, thorace convexo, disco utrinque minutis dentibus scabro, elytris rugoso-punctatis, ante apicem 2-dentatis; corpore infrà nigro, pedibus atro-piceis. Long. lin. 2½, lat. lin. 1.

Sp. 17. Apate rufa. Rufa, thorace convexo punctulato; elytris fortissimè punctulatis, apicibus rotundatis et integris, pedibus concoloribus. Long. lin. 1½, lat. lin. ¼.

Sp. 18. Promeces Sinensis. Obscurè viridis, capite cyaneo antennisque atris; thorace utrinque armato nigro, ternis lineis viridi-auratis insignito; elytris elongatis nigro-viridibus, suturâ pallidiori. Long. lin. 13, lat. lin. 2½.

[lxiv.] Sp. 19. Eumolpus ignicollis. Violaceus, capite anticè nigro, posticè aurato medioque viridi; thorace cupreo igneo marginato, sub lente punctulato; elytris violaceis lineato-punctatis, marginibus purpurascentibus. Long. lin. 3½, lat. lin. 1½.

Sp. 20. Galleruca atripennis. Nigra, antennis luteis; thorace flavo, elytrisque atris et nitidis, sub lente punctulatis; corpore infrà luteo, pedibus concoloribus. Long. lin. 3½, lat. lin. 1½.

Sp. 21. Gallerūca erosa. Lutea, antennis fuscis, primo articulo rubro; thorace utrinque lateribus subspinosis; elytris pallide luteis erosis, corpore infrà concolori. Long. lin. 2¼, lat. lin. 1¾.

April 4th, 1842.—W. W. Saunders, Esq., President, in the Chair.

Mr. Westwood exhibited three new species of Australian Rhipicera, from the collections of the Entomological Society and the Rev. F. W. Hope, of which the following are the characters :—

Rhipicera attenuata, *W.* R. nigra punctatissima angusta, elytris fusco-luteis, guttis minutis rotundatis albis sparsim notatis. ♂ Long. corp. lin. 7.—Hab. New Holland.

Rhipicera pumilio, *W.* R. angusta picea, capite nigro, prothorace et elytris guttis vel squamis albidis ornatis. Long. corp. lin 4.—Hab. New Holland; Swan River.

Rhipicera brunnea, *W.* R. brevis crassa, opaca, luteo-setosa; elytris fasciis nonnullis irregularibus interruptis, e squamis fulvis formatis; antennis brevibus, 18-articulatis. ♂ Long. corp. lin. 6½—9.—Hab. New Holland.

He also exhibited specimens of Goliathus Delessertii, *G.*, and Gnathocera micans, *G.*, from the collection of M. Guerin-Méneville.

The following memoirs were read :—

"Notice of an Apparatus for Capturing Insects by Lamp-light." By Mr. Stevenson, Corr. M.E.S., consisting of a box about two feet square and about a foot deep, without a wooden top, its place being supplied by four pieces of talc or glass, each fixed at an acute angle on the interior of the mouth, on each side of the square and opening inwards, a free open space of several inches square being left in the middle, at the back of which is a lamp, defended by a semicircular glass guard, against which the insects will fly, attracted by the light, and falling to the bottom of the box will be prevented from crawling out again by the oblique direction of the talc or glass front. This apparatus may be hung in any locality likely of success.

Continuation of "Descriptions of New Holland Chrysomelidæ allied to Cryptocephalus." By W. W. Saunders, Esq.

Anodonta, *Hope, MSS.* Body short, ovate, compressed or cylindrical. Legs rather short. Head vertical, rotundate. Eyes reniform. Antennæ subclavate, half as long as the body in the females, nearly as long as the body in the males; 3rd, 4th, and 5th joints rather long, nearly of equal length, slender, the remainder sensibly larger and gradually decreasing in length in the females, nearly of the same length in the males. [lxv.]

Section 1. Body ovate, compressed.

Anodonta Roei, *Hope MSS.* Head rufous-brown, the vertex and antennæ black: thorax rufous, shining, with a black diamond-shaped patch in the middle; scutellum black; elytra rich shining green, deeply punctured, with a narrow ochreous margin; legs black; base of femora and tibiæ rufous-brown. Length, ·21 inch ♀; ·17 ♂.—Hab. Swan River. Mus. Hope and Westwood.

Var. atripennis. Elytra black, with a purplish iridescence; 3rd and 4th joints of antennæ brownish.

Anodonta albilinea, *Hope MSS.* Head black, spotted straw-colour; antennæ black; thorax black, lateral margins white; elytra light yellowish brown, with a quadrate black patch on the disc, which joins the scutellum by a sutural band; punctate-striate near the tip: legs and tarsi shining black. Length ·16 inch.—Hab. Van Dieman's Land. Mus. Hope and Westwood.

Section 2. Body cylindrical.

Anodonta pulchella, *Hope MSS.* Head rufous-brown; vertex black; antennæ black, 3rd and 4th joints dull brown; thorax rufous-brown, shining; elytra shining green, with a broad rufous-brown lateral marginal band; legs and tarsi black. Length ·18 inch.—Hab. New Holland. Mus. Hope.

Anodonta cyanipennis, *Hope MSS.* Head and antennæ glossy black; thorax rufous-brown; scutellum black; elytra shining steel-blue, with purplish iridescence, deeply punctured, geminato-striato-punctate at the tip. Legs and tarsi black. Length ♀ ·16 inch; ♂ ·13 inch.—Hab. New Holland. Mus. Hope and Westwood.

Anodonta flaviventris, *Hope MSS.* Head jet-black, with a yellow heart-shaped patch on the face; thorax rufous-brown, with a black line in front; scutellum black; elytra shining black, striated with a subcentral V-like yellow mark; body beneath and legs pale yellow; tips of tibiæ and tarsi black. Length ·14 inch.—Hab. New Holland. Mus. Hope.

Anodonta rugosa, *Hope MSS.* Head and antennæ black; thorax black, shining, very gibbose in front, rugose and deeply punctured; scutellum black; elytra black, shining; apex rufous-brown, rugose and deeply punctured; legs black. Length ·18 inch.—Hab. New Holland. Mus. Hope.

Helodimorpha, *Saunders.* Body elongate, ovate, compressed. Head vertical, small. Eyes reniform. Antennæ filiform, variable in length; 3rd, 4th and 5th joints long, somewhat slender, 5th the longest; the remainder shorter than the 5th. Scutellum rounded behind.

Helodimorpha atra. Black; face striate; thorax shining, finely punctate; [xvi.] elytra shining, irregularly striate and punctured. Length ·18 inch. Hab. Van. Diemen's Land. Mus. Westwood.

Helodimorpha ænea. Shining bronze, with coppery iridescence; antennæ black; 3rd, 4th and 5th joints dull rufous; thorax deeply punctured; elytra irregularly punctured. Length ·17 inch.—Hab. Van Diemen's Land. Mus. Westwood.

Helodimorpha viridis, *Hope MSS* Antennæ nearly as long as the body, brilliant metallic-green; antennæ black, 2nd, 3rd and 4th joints dull rufous; thorax coarsely punctured and subcarinated behind in the middle; elytra closely and irregularly punctured; tips of posterior tibiæ and tarsi dull brown. Length ·11 inch.—Hab. New Holland. Mus. Hope and Westwood.

"Description of a new British species of Iulus." By George Newport, Esq.

Iulus Sandvicensis, *Newport.* Rather larger and thicker than I. terrestris; face very convex and polished; antennæ scarcely longer than the head, clavate; 2nd, 3rd, 4th and 5th joints subequal, 6th shorter, infundibuliform; segments of body 52, posterior half of each polished; anal valves very large; pre-anal scale short, trigonate. Found near Sandwich in Kent.

"Note on the occurrence of two species of Entozoa in the large veins of the liver of the human subject." By W. J. Pettigrew, Esq.

"Description of a new genus of Lamellicorn Beetles allied to Pachypus." By J. O. Westwood, F.L.S.

Metascelis, *Westw.* Corpus apterum; elytris apice dehiscentibus, podice detecto. Clypeus os omnino obtegens. Antennæ breves, 9-articulatæ, articulo 4to brevi internè producto, 5 et 6 lamelliformibus, 7, 8, 9que paullo longioribus. Maxillæ lobis apicalibus obsoletis. Prothorax lateribus rotundatis. Pedes 2 postici breviores crassissimi.

METASCELIS FLEXILIS, *W.* M. fusca, nitida; capite et podice magis castaneis, illo punctato; prothorace et elytris lævibus; infrà cum pedibus lutea, luteoque pilosa. Long. corp. lin. 7.—Hab. ——? Mus. Soc. Linn. Lond.

"Notes on the habits of Nyssia zonaria." By Mr. Gregson.

This newly-discovered moth occurs in the winged state in the first week in March. The pupæ are buried about an inch and a half deep in the sand, at New Brighton, in Cheshire, in a valley among the sand-hills near the hotel, and have never been noticed at any other place, except about three miles further down the sand-hills, on the level land adjoining cultivated ground near Leasow Castle, where Mr. Gregson found them at the end of June and beginning of July during several successive years. The spring brood are never seen on the wing; but the summer brood take wing in fine sunshine, [lxvii.] darting about like the gamma moth. The former brood are observed fanning their wings on the long grass on the sand-hills, but should the wind be cold they creep to the warm side of the tufts of grass, and are very difficult to find.

"Notes on the parasitic habits of the Nomadæ, and on the habits of other insects." By Mr. F. Smith.

In this paper Mr. Smith details the plans which he has adopted in order to observe the habits of the long-horned bee, Eucera longicornis, and its parasite, Nomada Schäfferella, (the male of which latter is the Andrena connexa, *K.*,) which he succeeded in obtaining early in the spring from the nests of the former. He also mentions having found an immense number (thousands) of specimens of the minute insect considered as the larvæ of Meloë, upon a flower, in April, whilst in June he captured a similar insect (but differing in form and colour) on the under side of the abdomen of Nomada Schäfferella. He likewise mentions that he had reared specimens of the same species of Cryptus (a genus of Ichneumonidæ) from Epipone levipes and Trichosoma lucorum.

"Note on the parasitic habits of Nomadæ." By George Newport, Esq., who obtained specimens of Nomada Sheppardana on the 16th July, 1829, from a bank of dry clay, at Ash, near Sandwich, where he found from six to eight specimens apparently recently disclosed, but sufficiently active to take flight when disturbed, in a single nidus apparently about the size of that of Colletes.

Mr. Shuckard, in allusion to the last two papers, stated that it was interesting to find that the genus Nomada did not confine its parasitism to one genus of bees, as he had obtained Nomada Sheppardana from the nest of Halictus minutus. He also stated that he had detected a specimen of Macropis labiata (a genus of bees not previously recorded as a native of this country) in the indigenous cabinet at the British Museum, with a label inscribed "Leicester," from the collection of Dr. Leach.

May 2nd, 1842.—W. W. SAUNDERS, Esq., F.L.S., President, in the Chair.

Frederick Parry, Esq., exhibited two cases of splendid Lepidoptera from Assam and Jamaica, including specimens of Papilio Agestor, *Gray*, and P. Cloanthus, *Westw.*

Mr. A. White exhibited the remarkable cocoon of the North American Bombyx crepuscularis, *Abb.* and *Sm.*, one end of which is closed with a valve.

Mr. Ingpen exhibited a specimen of the common white butterfly which had died in the act of passing from the larva to the chrysalis state.

Mr. Westwood exhibited specimens of the pupæ of a small species of Cicada, from the body of each of which one or several elongated appendages (clavariæ) had been [lxviii.] produced. Likewise a numerous collection of the portable cases formed by various insects, chiefly Lepidoptera allied to Oiketicus, *Guild.*, as well as numerous drawings of other kinds of cases, observing that in all the instances which had fallen under his notice the larva closes the mouth of the case by fixing the edges of the aperture where the front of the body has formerly protruded to the stems or leaves of trees, whereas in a drawing by Abbott in the British Museum, copied by Mr. Doubleday in the 'Entomologist,' pl. 1, fig. 15, the case of a species allied to Oiketicus is affixed by *a stalk at the open end* to the twig. Mr. Edward Doubleday, who was present, however, affirmed the correctness of the drawing in this respect.

Mr. Shuckard mentioned that he had found specimens in the indigenous collection of the British Museum of Anthocopa Papaveris, and of the genus Ammobates, *Latr.*, both hitherto unrecorded as natives of this country. He also exhibited some fine hymenopterous insects from New Holland, including a gigantic species of Megalyra, *Westw.*

A paper was read by Mr. Westwood, containing descriptions of some new exotic Lamellicorn Beetles.

SILPHODES INDICA, *W.* S. castaneo-fusca, lateribus rufescentibus; elytris striato-punctatis, mediocriter setoso-marginatis; tibiis anticis extùs (et inter dentes) serratis; tarsis anticis simplicibus. Long. corp. lin. 5⅓.—Hab. East Ind. Mus. Melly.

SILPHODES MADAGASCARIENSIS, *W.* S. piceo-castanea, lateribus pedibusque magis rufescentibus; capite anticè latiori; elytris minus ovatis, punctatis punctis majoribus, striisque tribus lævibus, punctis utrinque marginatis; lateribus longe setosis. Long. corp. lin. 5¾.—Hab. Madagascar. Mus. Melly.

SILPHODES DUBIA, *W.* S. nigricans, lateribus vix setosis; prothorace lævi; elytris sub lente irregulariter punctatis, lineis tribus lævibus in singulo, punctis utrinque marginatis; tibiis anticis externè (et inter dentes) serratis.—Long. corp. lin. 4½.—Hab.——? Mus. Hope.

June 6, 1842.—W. W. SAUNDERS, Esq., F.L.S., President, in the Chair.

Mr. Bond brought for distribution amongst the Members, specimens of Blethisa multipunctata and Callidium violaceum, and Mr. Evans specimens of Cleonis nebulosa and a rare species of Chrysomela.

Mr. S. Stevens exhibited a box of Coleoptera captured near Charlton, Kent, comprising several rare species.

Mr. Ingpen exhibited some branches of the spindle trees growing in Lincoln's-Inn-Fields, covered with multitudes of a species of Coccus.

Mr. F. Bond exhibited specimens of Schizocerus pallipes ♂ and Cladius difformis ♂, from Stanmore, Middlesex; also a beautiful variety of Pœcilophasia mar- [lxix.] ginata. He also presented a number of cocoons of the small Honey-Moth.

Mr. Stephens exhibited larvæ of Nyssia zonaria bred from eggs received from Mr. Gregson.

Mr. Westwood exhibited a specimen of a species of Typhlopone together with a female of a large species of ant which had lost its wings, brought from Algiers by M. Lucas, to the former of which was attached the following note:—"Fourmie trouvée dans une fourmilière qui par sa présence fait fuire les vrais habitans de la fourmilière;" the wingless ant being one of the latter. This fact was of interest as determining the real nature of the genus Typhlopone, which Mr. Shuckard has regarded as composed of female Dorylidæ, but which Mr. Westwood considered to be true Formicidæ. He also exhibited specimens of a new species of Cetoniidæ from Madagascar, remarkable for the thick coating of coloured hairs on the hind tarsi [since figured in the 'Arcana Entomologica,' under the name of Chromoptilia diversipes, *W.*]. He also exhibited the pupa of a species of Eumenia, a genus of butterflies, presented to him by M. Boisduval, which was attached by the tail as well as girt round the middle of the body, thus proving this anomalous genus to consist of gigantic Polyommatidæ. Also a singular larva of some unknown Coleopterous insect [Passalus?] which possesses only four feet, the third or posterior pair being reduced to a very minute size.

The following memoirs were read:—

"Description of a new British Iulus." By George Newport, Esq.

IULUS PILOSUS, *Newp.* Very like *Iulus terrestris*, but smaller and more elegantly formed. Black, shining, segments fifty-six, deeply striated longitudinally, with the margin of each, more especially of all the posterior segments, set with fine white hairs; anal spine compressed and elongated.

The chief characteristics of this species are the fringe of delicate hairs at the posterior margin of the segments, and the number of the latter, which amounts to fifty-six; while in Iulus terrestris, with which this species may readily be confounded, there are never more than fifty-one, and usually but fifty. It occurs in the neighbourhood of London at the end of May, but is not common.

"Description of Depressaria Gossypiella, a small moth which is very destructive to the cotton plant in India." By W. W. Saunders, Esq., President.

The insect in question, which was communicated to the author by Dr. Royle, has committed great ravages in the cotton plantations at Broach, in Western India, whence it was sent by Dr. Barn, superintendent of the government cotton plantations. In a commercial point of view, therefore, the means to be employed for its destruction are of importance. The eggs are deposited in the germen at the time of flowering, and the larva feeds on the cotton seed until the pod is ready to burst, a little previous [lxx.] to which it opens a round hole in the side of the pod, through which it descends to the ground, into which it burrows about an inch, where it assumes the pupa state.

DEPRESSARIA GOSSYPIELLA. Dark fuscous-brown, the head and thorax somewhat lighter in colour; fore wings with an undefined round blackish spot on the disk a little above the centre of a fascia of the same colour, crossing the wings a little above the apex, which itself is black; under wings silvery gray, darker towards the hinder margin. Length $\frac{4}{10}$ths of an inch.

Mr. Edward Doubleday (in allusion to Mr. Saunders's paper) stated that in North America he had observed that the cotton plants are not attacked by any of the Tineidæ, but that they suffer greatly from the attacks of several species of Noctuidæ.

"Descriptions of new Australian Chrysomelidæ allied to Cryptocephalus." By W. W. Saunders, Esq., President.

The name Anodonta having been previously employed in Zoology, the author proposes the name of Idiocephala in its stead, and describes the following new species:—

Sp. 7. IDIOCEPHALA SIMILIS, *S.* Black; head, thorax and elytra deeply punctured, the latter with the surface undulating, somewhat fuscous at the apex; body beneath with the sides of the mesosternal region and of the abdominal segments silvery pilose; legs with a purplish iridescence. Length $\frac{14}{100}$ths of an inch. Cabinet Ent. Club. Inhabits New Holland.

Sp. 8. Idiocephala Tasmanica, *S.* Head rufous-brown, with three round yellow facial spots; antennæ brown, darker at the tip, basal joint yellow; thorax rich rufous-brown, margins yellow, and with two yellow longitudinal lines on the disk behind; elytra rufous-brown, with the apex and margin round the scutellum yellow, each with four longitudinal carinæ; legs rufous-brown. Length $\frac{12}{100}$ths of an inch. Cabinet Ent. Soc. Lond. Inhabits Van Diemen's Land. C. Darwin, Esq.

Sp. 9. Idiocephala Darwinii, *S.* Head black, with a large triangular patch in front; antennæ dusky brown, basal joints rusty brown beneath; thorax rufous-brown, pitchy in front; elytra punctate-striate, dark metallic-green, the apex luteous; legs horn-coloured; tarsi dusky. Length $\frac{9}{100}$ths of an inch. Cabinet Ent. Soc. Lond. Taken near Sydney, N. S. Wales. C. Darwin, Esq.

Sp. 10. Idiocephala semibrunnea, *S.* Head shining black; face rufous-brown; antennæ black, basal joints rufous-brown; thorax rufous-brown; scutellum shining black; elytra brown, punctate-striate, margined with black, which ascends half-way along the suture; legs horny brown; tarsi pitchy. Length $\frac{9}{100}$ths of an inch. Cabinet Ent. Soc. London. Taken near Sydney by Mr. Darwin.

"Monograph of the genus Nyctelia." By G. R. Waterhouse, Esq., who exhibited [lxxi.] the extensive collection of that group belonging to the Marquis de Breme, who was present at the Meeting.

[This memoir has subsequently been published in the Proceedings of the Zoological Society.]

"Descriptions of new species of insects collected at Adelaide in South-Western Australia, by Mr. Fortnum." By the Rev. F. W. Hope.

Fam. Buprestidæ.

Sp. 1. Stigmodera Fortnumi. Violacea, capite viridi, thorace punctulato lateribus flavo-marginatis, medio purpurascenti; elytris ternisque latis fasciis flavis insignitis. Long. lin. 18, lat. lin. 8.

Sp. 2. Stigmodera Parryi. Nigra, capite anticè argenteo; thorace nigro-punctato; elytris miniatis ad basin maculis ternis atris insignitis, binis externè humeralibus et elongatis, tertioque infra scutellum posito. Long. lin. 3½, lat. lin. 1.

Sp. 3. Stigmodera Guerinii. Violacea, thorace nigro marginibus auratis; elytris anticè et posticè nigro-violaceis, in medio fasciâ latâ flavâ insignitis. Long. lin. 3, lat. lin. 1¼.

Sp. 4. Conognatha Bremei. Nigra, capite æneo, medio fortiter impresso; thorace bronzeo, disco punctatissimo lineâ longitudinali, in medio vix impressâ, foveâ utrinque fortiter insculptâ; elytris nigris, binis fasciis rubris. Long. lin. 9, lat. lin. 3½.

Sp. 5. Conognatha coccinata, *Hope.* Coccinea, capite viridi antennisque concoloribus; thorace lætè miniato maculis ternis viridibus insignito; elytris coccineis, tribus fasciis lætè viridibus ornatis, primâ basali duabus aliis ferè apicalibus. Long. lin. 5¼, lat. lin. 2.

Fam. Cantharidæ.

Tmesidera, *Westwood in Guérin, Mag. Zool.*

Sp. 6. Tmesidera violacea, *Hope*. Violacea, capite nigro; thorace nigro ánticè capite latiori, angulis anticis rotundatis, posticis ferè rectis; elytris varioloso-rugosis; corpore infrà rubro. Long. lin. 5¼, lat. lin. 1¾.

Sp. 7. Tmesidera assimilis. Nigra, antennis pedibusque concoloribus et nitidis; elytris rubro-testaceis lineis parùm elevatis. Long. lin. 4½, lat. lin. 1¼.

Sp. 8. Tmesidera rubricollis. Nigra, thorace rubro, elytris atris subrugosis pedibusque concoloribus; corpore infrà nigro. Long. lin. 3, lat. lin. 1.

Fam. Carabidæ.

Sp. 9. Calosoma Curtisii. Viride, thorace ferè glabro posticè fortiter impresso; elytris striato-punctatis et rugosis, punctisque impressis, in triplici serie ordinatis; infrà piceum; pedibus antennisque piceis. Long. lin. 10, lat. lin. 4.

[lxxii.] Sp. 10. Calosoma australe. Nigro-æneum, thorace subcordato punctulato, posticè utrinque fortiter impresso; elytris nigro-æneis, confertim punctato-striatis, punctis subæneis in triplici serie ordinatis. Long. lin. 10, lat. lin. 3½.

Fam. Heteromorphidæ, *Hope*.

Silphomorpha, *Westwood*.

Sp. 11. Sil. Orectocheiloides, *Hope*. Corpore suprà nigro-piceo lateribus thoracis marginibusque elytrorum pallidioribus, infrà brunneo-picea, antennis pedibusque concoloribus. Long. lin. 6¼, lat. lin. 2¼.

Sp. 12. Adelotopus Fortnumi, *Hope*. Niger, marginibus lateralibus thoracis piceis, palpis ferrugineis; corpus infrà atro-piceum, segmentis abdominis posticè brunneo-piceis, pedibus concoloribus. Long. lin. 3½, lat. lin. 1½.

Fam. Harpalidæ.

Acinopus, *Ziegler*.

Sp. 13. Ac. australis, *Hope*. Niger, thorace magno, transversè subrugoso, marginibus externis thoracis posticè lætè cupreis; elytris fere glabris, marginibus subæneis et punctatis. Long. lin. 9, lat. lin. 2½.

Fam. Byrrhidæ.

Sp. 14. Anthrenus australis. Niger, capite atro, thorace medio concolori marginibus externis albis; elytris tribus fasciis undatis albis; corpore infrà nigro. Long. lin. 1¼, lat. lin. ½.

Fam. Melyridæ.

Sp. 15. Dasytes nigricans, *Hope*. Ater pubescens, thorace longioribus capillis obsito; elytris atro-brunneis marginibus externis pallidioribus. Long. lin. 1¾, lat. lin. ¾.

Sp. 16. Dasytes fuscipennis. Ater, antennis rubris; thorace pubescente, nigro; elytris fusco-testaceis punctatis, pedibus concoloribus. Long. lin. 1¾, lat. lin. ¾.

Fam. PSELAPHIDÆ.

ARTICERUS, *Dalman*.

Sp. 17. ARTICERUS FORTNUMI. Sanguineus, capite elongato-ovato fronte rotundato; thorace ferè quadrato, angulis anticis rotundatis, medio impresso; elytris thorace latioribus marginibus posticis nigricantibus; abdomine posticè rotundato utrinque maculâ nigrâ insignito. Long. lin. ½, lat. lin. ¼.

Mr. Evans communicated a notice relative to an exotic species of caterpillar of large size and black colour with red spots, the hairs of which are so rigid that they penetrate into the flesh when incautiously handled, causing much pain and inflammation.

Mr. Westwood stated that he had recently acquired the greater part of Latreille's original collection of bees from the Abbé Blondeau, by whom it had been purchased at the sale of the collection of Baron Déjean.

[lxxiii.] July 4th, 1842.—W. W. SAUNDERS, Esq., F.L.S., President, in the Chair.

Mr. F. Smith exhibited a number of British Vespidæ, Crabronidæ and Apidæ, accompanied by specimens of their nests, &c.

Mr. Westwood exhibited a specimen of a new Goliath Beetle from the East Indies (Cyphonocephalus smaragdalus, *W.*, *Arc. Ent.*), and some rare Papilionideous and Cimicideous insects from the collection of the Bristol Institution, communicated by G. H. K. Thwaites, Esq. Likewise a new and singular genus of Coleoptera, but of doubtful family, from the collection of M. Dupont. Likewise Orchestes Quercus and its parasites, reared from mined leaves of oak from Weybridge.

Mr. S. Stevens exhibited a box of British moths, taken in June in the Hammersmith Marshes, including the following rare species:—Leucania obsoleta and Vectis, Nudaria senex, Melia sericea, Chilo gigantellus and phragmitellus, &c.

The Rev. F. W. Hope exhibited a number of new and rare Coleoptera from Cape Palmas.

Mr. W. W. Saunders exhibited numerous gall-like nidi of an insect upon a twig of Leptospermum from New Holland. Likewise specimens of Triphæna pronuba stuck upon thorns by the butcher-bird, remarking that this species of moth was the only one selected by the bird at the time they were observed. Mr. Hope, however, stated that he had occasionally observed Libellulæ and Geotrupides also similarly affixed.

Mr. J. F. Stephens exhibited a specimen of Calosoma sycophanta recently captured at Herne Bay, Kent.

Mrs. North, of East Acton, exhibited a minute wasps' nest found in the interior of a hive of bees, which had in consequence been deserted by the inhabitants.

Mr. Ingpen exhibited a fossil wing of a large species of Limnobia, obtained by the Rev. P. B. Brodie from the lias near Gloucester, and similar to some found in the Wealden strata of Wiltshire.

Mr. Raddon exhibited a specimen of Goliathus Drurii, *Westw.*, taken at Frisa, on the West Coast of Africa, 5° 20″ lat. N. and 6° West long.: its food was stated by the natives to be the common bamboo canes, in which it lodges for a considerable time, entering at the but and ascending nearly eight feet, when it is generally found in the state of a grub.

Mr. Hope read several extracts from a letter received from Mr. Savage at Cape Palmas, by whom a considerable number of Goliath beetles (G. Drurii, Cacicus, princeps and torquatus) and other rare insects had been transmitted to Mr. Hope.

A paper by S. S. Saunders, Esq., Consul of Albania, containing further observations on Mygale Ionica, was read (since published in the Transactions of the Society).

August 1, 1842.—The President in the Chair.

Mr. W. W. Saunders exhibited various interesting Lepidoptera from Van Diemen's Land.

[lxxiv.] Mr. Westwood noticed the peculiar construction of the scutellum of the large species of Goliath beetles, which does not allow the elytra to be elevated beyond a very little distance above the back.

Mr. F. Smith exhibited a specimen of Macropis labiata ♂, taken by Mr. S. Stevens during the excursion to Weybridge in June; also specimens of the male, female and two kinds of neuters of Formica sanguinea.

Mr. S. Stevens exhibited some Egyptian beans greatly eaten by Anobium paniceum, and Mr. Saunders stated that a cargo of the Pady or Divi Divi, a South American legume, had been very greatly injured by a species of Bruchus.

Mr. Ingpen exhibited some radishes from Battersea Fields, the stems of which were greatly swollen in parts, probably resulting from the punctures of some insect.

Mr. Westwood exhibited some Dipterous larvæ which feed on the heads of lettuce seed. He also read a memoir entitled "Descriptions of some new Exotic Reduviidæ of large size:"—

ECTRICHODIA IMPERIALIS *W.* E. purpurascens, hemelytris atris, abdominis marginibus detectis fulvo purpureoque alternatim maculatis; antennis 6-articulatis, radiculâ basali haud computatâ. Long. corp. unc. 1¾.—Hab. Cape Palmas, Mr. Savage. Mus. Hope.

PLATYMERIS DUCALIS, *W.* Nigra nitida, hemelytris maculâ laterali, femoribus fasciâ latâ subapicali, abdominis maculis lateralibus rufis, pronoto scutelloque spinigeris. Long. corp. unc. 1⅝.—Hab. Cape Palmas, Mr. Savage. Mus. Hope.

ECTINODERUS, *W.* Subg. nov. Pronotum maximum anticè suprà basin pedum anticorum dilatatum in medio transversè impressum, posticèque in lobos duos suprà basin hemelytrorum protensum. Pedes antici valdè elongati, femoribus crassis tibiisque rectis. Antennæ 4-articulatæ, articulo 1mo longo, tribus ultimis sensim brevioribus et tenuioribus (inter art. 1 et 2 et 2 et 3 articuli minimi apparent). Abdomen subrotundum depressum lateribus detectis.

ECTINODERUS LONGIMANUS, *W.* Obscurè luteus, capite antennis et hemelytrorum membranâ nigris, femoribus fasciâ mediâ apiceque tibiisque anticis (nisi ad basin) nigricantibus hemelytrorum corio et abdominis lateribus luteo nigroque variis. Long. corp. unc. 1⅓.—Hab. Singapore? Mus. Westwood.

Obs.—Mr. Cuming has brought another species of this subgenus from the Philippine Islands.

September 5th, 1842.—W. W. SAUNDERS, Esq., F.L.S., President, in the Chair.

Mr. Ingall exhibited a monstrous specimen of Bombyx castrensis, one side of which was male and the other side female, the division being visible throughout the whole extent of the body.

Mr. Douglas exhibited a specimen of Notodonta Tritophus, a moth new to Britain, which he had reared from a larva found near Colchester in July last.

[lxxv.] Numerous specimens of Colias Hyale were exhibited by Messrs. Evans and Stevens, captured in Kent, Middlesex, and Sussex; and many other captures of the same species in various localities were also mentioned by different Members present, Mr. Marshall stating that it was the opinion of Mr. Hoyer, that the great number which had been observed was owing to the default of the crops of clover last year, when a large supply of seed was obliged to be obtained from Trieste, with which it was supposed that the eggs had been imported. Other members, however, condered that this species was periodical in its appearance, and that the present season was one of the periods of its apparition.

Mr. S. Stevens also exhibited a fine specimen of Catocala Fraxini, captured a few evenings previous to the Meeting in his garden at Hammersmith, having been attracted by sugar daubed upon the trunk of a fruit-tree.

The following memoirs were read :—

"Note on a species of Acarideous insect which deposits its eggs in great numbers upon stones on commons." By W. W. Saunders, Esq.

"Notes on the habits of Megachile Willughbiella? and Megachile centuncularis." By George Newport, Esq., V.P.E.S.

The first portion of this paper contained an account of the formation of the nests of the former of these species of bees in the swing-pole or lever of one of the gates of the locks at Gloucester, communicated by Mr. Clegram; the situation selected by the bees being evidently very favourable to them, as in a space of fifteen inches long by five inches square, as many as 300 cocoons were found; the operations of the bees were also shortly described (long previously and more completely detailed by Reaumur and others). The second part of the paper comprised a series of minute observations by the author relative to a variation observed in the economy of the latter species, a female of which had been observed to employ not only rose leaves, but particles of cotton cloth very finely carded or picked to pieces, in the construction of its nest, and which Mr. Newport afterwards discovered was adopted with the view of filling up cavities in the base of the hole in which it had made its nest.

Notice by Mr. A. White of a monstrous specimen of Prionus (Macrotoma) Senegalensis, in which both antennæ are furcate from the third joint; and of a Cimicideous insect from Sierra Leone (Probænops dromedarius, *Wh.*), presented to the British Museum by the Rev. D. F. Morgan, and subsequently described in the 'Zoologist.'

Extract of a letter from Captain Boys to the Rev. F. W. Hope, dated Almorah, April 27, 1842, containing notices of the habits of various species of Indian insects.

At Mhow (Malwa) he never collected Oryctes but in the decaying trunks of the wild date-tree (Phœnix farinifera, *Roxb.*), and constantly near its root. At Almorah, [lxxvi.] however, he found some larvæ, which he considered to be those of that genus, amongst the oak bark used by the natives for tanning. The want of proper food and moisture he considers to be the cause of the diminutive size of many specimens. In the trunks of the date-trees he also found the larvæ of a large species of Calandra. In the high districts of Mhow he found Colliuris and Casnonia in profusion: the latter also was found "common enough down below," but not the former. He found carrion insects comparatively few: many species of Hister, and, as far as his own experience of the plains went, one species of Silpha, one of Oiceoptoma (neither very numerous), and Necrobia and Clerus in abundance, were nearly the sum total.

He also describes a species of the Heteromerous genus Platynotus, which in its habits is a "true burying beetle," and a few of which will sink a crow in the course of a few hours; it simulates death immediately it is touched, contracting its legs close to its abdomen. Many beetles considered purely coprophagous feed upon dead animals, and one of these he noticed to be very select in its choice, namely, Onthophagus igneus, which he had never been able to take except from the dead bodies of serpents. The only insects he had observed in the nests of the white ants are Hegeter, Scarites, Siagona, and some species of spiders.

Paussus he never found there, but he has no doubt that it is the case, as he is inclined to think that it ought to be placed either with or near the Carabidæ, principally because he had observed that several species possess the power of crepitating and discharging a vapour which has the same smell and properties as that discharged by the Brachini, and that the joints of the tarsi, when the fresh insect is examined, prove to be five in each leg, and though the first is very minute, yet it is well defined. He had taken Paussus by sweeping among high herbage, but most frequently by spreading out a sheet with a lighted candle in the centre on a dark night.

Continuation of a memoir containing "Descriptions of new species of Coleoptera from Port Essington, in New Holland." By the Rev. F. W. Hope.

HETEROMERA.

TRIGONOTARSUS,* *Hope, nov. gen.*

Forma ferè orbicularis. *Cœlo* affinis Eschscholtzii. Antennæ 11-articulatæ, extrorsùm magnitudine increscentes, ternis ultimis majoribus. Caput clypeo integro, ultimo articulo palporum cylindrico, apice acuto, præcedenti majori. Thorax anticè emarginatus, scutellum nullum. Elytra posticè acuminata. Tibiæ anticæ trigonæ externèque dentatæ, reliquæ simplices.

Sp. 1. TRIGONOTARSUS AUSTRALIS, *Hope.* Fuscus, antennis apice piceis; thorace piloso, elytrisque concoloribus; corpus infrà squalidum et tomentosum; tibiis [lxxvii.] anticis rubris, antrorsùm trigonis externè dentatis, dente majori in medio posito. Long. lin. 2½, lat. lin. 1½.

I have thought proper to make the above insect the type of a new genus; it approaches nearly to Cœlus of Eschscholtz: it is my intention to figure it shortly.

Sp. 2. TAGENIA FUNEROSA, *Hope.* Nigra, antennis pilosis; capite anticè depresso; thorace parùm convexo; elytris striato-punctatis et hirsutis, pedibusque nigris. Long. lin. 2, lat. lin. ½.

This insect inhabits Van Diemen's Land.

Sp. 3. TAGENIA LEUCOSPILA, *Hope.* Nigra, antennis incrassatis et pilosis, capite punctato albisque capillis asperso; thorax transversè impressus et punctulatus; elytra fortiter punctata, punctis duplici serie signatis lineisque aliquot elevatis pilosis, variisque maculis albis pilosis per discum aspersis pedibusque nigris Long. lin. 2, lat. lin. ½.

τριγωνὸς, *triangulus*, et ταρσός, *tarsus*.

This species occurs at Port Essington and at Swan River, and I believe also at Van Diemen's Land.

Sp. 4. Platynotus insularis, *Hope*. Niger, capite ferè quadrato; thorace glabrato, posticè angulato, marginibus elevatis; elytra excavato-punctata, apicibus subacutiusculis; corpus infrà nigrum, tarsis piceis. Long. lin. 7, lat. lin. 3.

I have received this insect from Melville Island; a very minute specimen has reached me also from Port Essington.

Sp. 5. Opatrum sphæroides, *Hope*. Nigrum, clypeo emarginato, antennis ultimis articulis increscentibus et piceis; thorax punctulatus; elytra rugosa, subtuberculata, pilosa; corpus infrà nigrum, pedibus concoloribus, tarsis exceptis piceis. Long. lin. 2¼, lat. lin. 1¾.

Sp. 6. Opatrum piceitarsis, *Hope*. Fuscum, capite anticè impresso, antennis piceis; thorax ferè quadratus, angulis anticis parùm productis et acutis, posticis vix rectis; elytra striato-punctata, thorace triplo longiora; corpus infrà fusco-griseum, femoribus tibiis concoloribus tarsisque piceis. Long. lin. 3¾, lat. lin. 1.

Sp. 7. Isopteron Opatroides, *Hope*. Fuscum, antennis rubro-piceis; thorace angulis anticis subacutis, posticis ferè rectis; elytra striato-punctata; corpus infrà atrum punctatum, femoribus tibiis concoloribus tarsisque piceis. Long. lin. 4, lat. lin. 1¼.—Hab. Western Australia.

Sp. 8. Asida serricollis, *Hope*. Nigra, antennis tarsisque piceis; thorace valdè emarginato lateribusque externè serratis; elytra aliquot lineis minutis punctisque elevatis per totum discum aspersis; corpus infrà concolor, tarsis exceptis piceis. Long. lin. 4½, lat. lin. 2.

Sp. 9. Endophlæus australis, *Hope*. Flavo-brunneus, antennis nigricantibus [lxxviii.] pilosis; thorax angulis anticis parùm productis, posticis rectè acutis, disco lineâ longitudinali maculâ utrinque nigricanti insignito; elytra flava brunneoque colore variegata; corpus infrà concolor, tarsis infrà flavo-comatis. Long. lin. 3½, lat. lin. 1½.

Sp. 10. Endophlæus variicornis, *Hope*. Niger, antennis atris articulis quibusdam flavis et pilosis; capite atro nitido; thorax excavatus, anticè niger, posticè flavus, maculis duabus atro-pilosis ante scutellum positis; scutellum flavum; elytra sulcata, lineato-punctata, flavo brunneoque colore variegata; corpus infrà griseo-flavum. Long. lin. 2½, lat. lin. 1.

I received the above from the vicinity of Adelaide.

Sp. 11. Neomida tetraspilota, *Hope*. Atra, capite anticè rubro; thorace nigro et nitido; elytra concoloria, quatuor maculis rubris insignita, binæ ad humeros binæque aliæ ad apicem positæ; corpus infrà nigrum, pectore utrinque rufescenti, pedibusque rubris. Long. lin. 1¾, lat. lin. ½.

Sp. 12. Tetraphyllus sumptuosus, *Hope*. Violacea, antennis concoloribus; thorace anticè posticèque cyaneo, lateribus auratis; elytra striato-punctata, binis fasciis auratis insignita apicibusque concoloribus, medio disci lætè violaceo maculisque duabus cyaneis ante apicem positis; corpus infrà abdomine violaceo, pectore femoribus auratis, tibiisque cyaneis. Long. lin. 2½, lat. lin. 1½.

Sp. 13. Cnodulon longipenne, *Hope*. Affine *Cn. cupreo*, Fab. Oblongum, thorace atro; Elytris viridi-purpurascentibus striato-punctatis, punctis minutis; corpore infrà atro et nitido. Long. lin. 7½, lat. lin. 3½.

Sp. 14. Cnodulon cupripenne, *Hope*. Oblongum, thorace atro-æneo, subtilissimè punctulato, antennis nigris; elytra cupreo-ænea, vix sub lente striato-punctata, punctis sparsim aspersis; corpus infrà nigrum. Long. lin. 6½, lat. lin. 3¼.

Sp. 15. Cnodulon cupricolle, *Hope*. Oblongum, thorace rosi-cupreo glabro, antennis atris; elytra olivaceo-viridia, lineato-punctata, punctis minutis; corpus infrà nigrum. Long. lin. 5½, lat. lin. 2½.

The above insect inhabits Melville Island.

Sp. 16. Cnodulon puncticolle. Oblongum, thorace atro, punctulato; elytris cupreo-æneis sulcato-punctatis, sulcis fortiter punctatis, punctis inter strias minutis; corpus infrà nigrum et nitidum. Long. lin. 6, lat. lin. 3.

Sp. 17. Cnodulon sulcipenne, *Hope*. Oblongum, thorace atro glabro elytrisque cupreo-æneis sulcato-punctatis, sulcis fortiter impressis, interstitiis striarum lævibus; corpore infrà nigro et nitido. Long. lin. 4½, lat. lin. 2.

Sp. 18. Cnodulon picicorne. Oblongum, thorace atro antennisque piceis; elytra cupreo-ænea purpurascentia, striato-punctata; corpus infrà nigrum, [lxxix.] femoribus concoloribus, tibiis tarsisque brunneo-piceis. Long. lin. 4, lat. lin. 1¾.

Sp. 19. Cnodulon cyanipenne, *Hope*. Oblongum, thorace trapezoidali nigro, anticè contracto, posticè dilatato; elytra lætè cyanea, striato-punctata; corpus infrà nigrum, pedibus antennisque concoloribus, antennis quatuor ultimis articulis magnitudine increscentibus; tarsis infrà flavo-comatis. Long. lin. 6, lat. lin. 2.

This insect, from the shape of the thorax, ought to be separated from Cnodulon.

Sp. 20. Cnodulon anthracinum, *Hope*. Atrum, præcedenti affine; caput ferè quadratum, antennis palpisque piceis; thorax glaber, elytris striato-punctatis; corpore infrà concolori et nitido. Long. lin. 4, lat. lin. 1¼.

I possess about ten other species of Cnodulon which are undescribed. It appears that there are two, if not three, subgenera included at present amongst the New Holland insects ranked as Cnodulon.

Sp. 21. Tenebrio longipennis. Niger, thorace ferè quadrato, angulis anticis rotundatis, posticis acutis et denticulatis; elytris striato-punctatis nitidis atris; corpore infrà pedibusque concoloribus. Long. lin. 8, lat. lin. 2.

Sp. 22. Tenebrio convexiusculus, *Hope*. Niger, præcedenti affinis at minor; thorace convexiori; elytris fortissimè punctatis, punctisque majoribus valdè impressis. Long. lin. 6, lat. lin. 1½.

Sp. 23. Tenebrio cyanipennis, *Hope*. Ater, antennis brunneo-piceis; thorace nigro-violaceo, ferè glabro; elytris striato-punctatis et cyaneis; corpus infrà nigrum, femoribus tibiis piceis, tarsisque infrà flavo-comatis. Long. lin. 5¾, lat. lin. 1½.

Sp. 24. Helops latipennis, *Hope*. Nigro-chalybeus, thorace ferè quadrato depresso et punctato; antennis atris, quatuor ultimis articulis piceis; elytra thorace latiora, posticè parùm dilatata, subtilissimè punctata et viridi-chalybea; corpus infrà nigrum nitidum, femoribus tibiis palpisque piceis, tarsisque infrà flavo-comatis. Long. lin. 10, lat. lin. 4.

Sp. 25. Allecula Pimeloides, *Hope*. Nigra, antennis piceo-tomentosis; thorace convexo, angulis anticis rotundatis; elytra thorace triplo longiora, subacuminata,

striato-punctata, striis haud fortiter impressis; corpus infrà nigrum, ultimo segmento abdominis in medio flavo-maculato. Long. lin. 8, lat. lin. 2½.

Sp. 26. ALLECULA OMOPHILOIDES, *Hope.* Nigra, thorace depresso convexo, angulis posticis subacutis, lateribus medio dilatatis; elytra striato-punctata, posticè valdè dilatata; corpus infrà nigrum punctatum tarsisque infrà flavo-comatis. Long. lin. 6, lat. lin. 2.

Sp. 27. ALLECULA MELANCHOLICA, *Hope.* Nigra, thorace ferè rotundato, punctulato, elytrisque striato-punctatis, posticè gradatim dilatatis, corpus infrà nigrum. Long. lin. 5¾, lat. lin. 1½.

[lxxx.] Sp. 28. ALLECULA CANESCENS, *Hope.* Fusco-grisea, thorace albido-tomentoso; elytris striato-punctatis, fusco-cinerascentibus seu albidis capillis obsitis; corpus infrà concolor. Long. lin. 6, lat. lin. 2.

Sp. 29. ALLECULA FOVEICOLLIS, *Hope.* Picea, thorace glabro, foveâ impressâ rotundatâ utrinque notato; elytra striato-punctata, picea, punctis fortiter insculptis; corpus infrà concolor, pedibus pallidioribus. Long. lin. 5, lat. lin. 1¼.

Sp. 30. ALLECULA GOULDII. Affinis præcedenti at minor; picea, thorace glabro convexo; elytris parùm pallidioribus striato-punctatis, punctis leviter impressis; corpus infrà rubro-piceum.

Named in honour of Mr. Gould, the ornithologist.

Sp. 31. ALLECULA NIGRICANS, *Hope.* Atro-picea, thorace punctulato; elytris striato-punctatis, interstitiis striarum sparsim punctatis; corpus infrà piceum, pedibus concoloribus. Long. lin. 4½.

This species was also sent to me by Mr. Gould from Port Essington.

"Notice of a case of Myasis," by Dr. Henry Johnson (communicated by the Rev. F. W. Hope), in which specimens of the larvæ of Anthomyia canicularis had been discharged, in June, 1842, by the aid of moderately active aperients, from the stomach of Elizabeth Ball, aged 35, the wife of a hawker (and who had for six months previously been ill) at Shrewsbury, specimens of which had been forwarded to Mr. Hope, together with a highly magnified figure of the insect, drawn by W. A. Leighton, Esq., agreeing with that figured in the Transactions of the Entomological Society. Dr. Johnson, moreover, suggested the inquiry, whether the larvæ produce the disorder of the stomach, or are they secondary consequences of unhealthy digestion? the latter opinion gaining ground at the present time among medical men.

The Rev. F. W. Hope also communicated an extract of a notice by Dr. Davis, of Presteign, from the Proceedings of the Exeter Meeting of the Provincial Medical and Surgical Association, containing a notice of a case in which a number of Millepedes, or wood-lice, as they were termed (but which proved, upon examination, to be a species of Oniscus), had been discharged from the stomach of a boy fifteen years old, who for some months had complained of pain in his stomach which did not yield to common remedies, until he was relieved by a strong emetic, which caused him to vomit a considerable number of these insects, mostly alive and full-grown, but wanting the brown colour of those found in natural situations, being chiefly white. There were sufficient to have filled a common-sized teacup. Dr. Davis considered that the ova had been swallowed by the boy with his food, especially as he has frequently observed the insects buried in bacon, which is sometimes eaten raw by children.

The Rev. F. W. Hope also stated that he had lately seen at Tunbridge Wells the larva of a Coleopterous insect which had caused severe illness in a female until it was removed by violent medicine.

[lxxxi.] October 3rd, 1842.—W. W. SAUNDERS, Esq., F.L.S., President, in the Chair.

The President exhibited some singular exotic Hymenopterous insects belonging to the genera Nomia and Eucharis.

Mr. Thurston Thompson exhibited a specimen of the small common edible crab (Carcinus mænas), on the back of which a madrepore had grown several times larger than the crab.

The Secretary read some extracts from a letter addressed to himself by Robert Templeton, Esq., R.A., at present at Colombo, in Ceylon, containing minutely detailed descriptions of several species of the genera Cermatia and Lepisma, accompanied by drawings.

"Description of a new genus of Lucanidæ from New Zealand." By Captain F. Parry, F.L.S.

MITOPHYLLUS, *Parry*. Forma *Platyceri Caraboidis* at magis cylindricus, apice elytrorum rotundato; antennæ 10-articulatæ, articulis 3bus ultimis ♂ intùs ramum valdè elongatum pilosum singulatim emittentibus; mandibulæ ♂ crassæ porrectæ, capitis longitudine, apice curvatæ et in dentem erectum suprà productæ; maxillæ parvæ, lobo externo laciniiformi; mentum magnitudine mediocri lateribus rotundatis.

MITOPHYLLUS IRRORATUS, *Parry*. Rubro-piceus, maculis obscuris atris per totum corpus aspersis; mandibulis porrectis recurvis, anticè acutis posticèque denticulatis; tibiis 4 anticis in medio extùs unidentatis. Long. corp. lin. $4\frac{1}{2}$.—Habitat in Novâ Zelandiâ apud portum Nicholsoni.

The commencement of a memoir on various genera belonging to the families Geotrupidæ and Trogidæ. By J. O. Westwood, Esq.

November 7th, 1842.—W. W. SAUNDERS, Esq., President, in the Chair.

The Rev. F. W. Hope exhibited various new and beautiful insects from the Kasya Hills, near Sylhet.

Mr. W. W. Saunders exhibited a box of Hymenoptera and Diptera from Albania, collected by S. S. Saunders, Esq., British Consul there, and comprising several of considerable interest; also some of the nests of Mygale Ionica.

Mr. F. Bond exhibited and subsequently presented to the Society a specimen of Locusta Christii, taken at Childs-hill near Hampstead, in August last. He had kept it alive more than a month, feeding it on grass, which it devoured with great voracity. He also exhibited a drawing of a monstrosity occurring in one of the claws of the common crab, which was doubled.

Mr. Lovel exhibited specimens of a small species of Apate, which had proved extremely injurious to walnut-tree gun-stocks imported from Dauphiny, the insects burrowing into the heart of the wood whilst in a green state. Many former cargoes had been received without any such injury, and it was desirable to learn under what circumstances this injury might be prevented, or at what period of the year it would be [lxxxii.] most serviceable to cut down the stocks so as to prevent the damage.

Mr. S. Stevens exhibited a long series of British Noctuæ belonging to the genus Nonagria, clearly proving that N. lutosa, pilicornis and crassicornis are but varieties of one species.

Mr. Westwood exhibited specimens of a Noctuideous larva, apparently of the genus Agrotis, forwarded to him by Dr. Johnston, of Berwick-upon-Tweed, which had proved extremely injurious to the potato crops in that neighbourhood.

The following memoirs were read:—

A detailed account of the case of Myasis noticed at the last Meeting of the Society by Dr. H. Johnson, with references to an analogous case reported in the Medical Transactions (vol. i. p. 53), and to Dr. A. Farre's paper on the anatomy of the larva of Anthomyia canicularis, published in the Transactions of the Microscopical Society, vol. i. pt. 1. p. 51.

"Notices of Entomological captures at Stockton-upon-Tees." By John Hogg, Esq., F.L.S., &c.; namely, two specimens of Vanessa Antiopa; one seen on August 7, 1831, and the other taken on September 2, 1842, at Norton House, the residence of the writer. Also a specimen of Vanessa Cardui in 1842, not seen since 1826 and 1834. Argynnis Paphia, captured August 28, 1828, and again in September 1842 on flowers; thus being later in the time of their appearance than in the South of England. The caterpillars of Sphinx Atropos were abundant in potato-fields in October 1837, and again in 1842; but the only *moth* of that species was caught there about thirty-two years since.

Vespa Britannica, *Leach*, had been not uncommon, its nest not being larger than an orange, and of a very beautiful and delicate workmanship. One of the specimens taken out of one of these nests is so much larger in its size that Mr. Hogg considers it to be the queen-wasp, or mother of the nest, as she was the only one of the colony which would not leave the nest, which was taken on the 30th of July, the wasps which escaped therefrom, six or eight in number, immediately beginning to build another near the same spot, and suspending it to the dry stalk of the garden pea, working at it most diligently for four days, when they forsook it, owing either to the queen-wasp being taken or to the rain and decay of the pea-stalk. The fine paper-like substance of which the nest was composed was formed by the wasps chewing pieces of the dry *old pea leaves*, as he had observed.

Another species (which, from constructing a much larger nest under the branch of a bush, he considered to be Vespa Holsatica?), whilst building the nest, busily ate or gnawed the membrane or portion of the *green leaves* of a purple gage-plum tree which was close to their nest, and to and from which they quickly flew and returned.

Vespa vulgaris elaborates a coarser and stronger substance for the manufacture of [lxxxiii.] its nest, and which is chiefly composed of decayed wood; as Mr. Hogg had often seen these wasps busily gnawing the decayed part of a gate-post, &c., and then fly off to their nest: in fact he adds, that "one of the easiest modes of discovering their nests is to follow them when they are so engaged."

Continuation of a memoir on the Geotrupidæ and Trogidæ. By J. O. Westwood, F.L.S.

"Descriptions of some new Coleopterous insects from the Kasya Hills, near the boundary of Assam. By the Rev. F. W. Hope.

Lucanus Cantori. Piceo-brunneus aurataque pubescentia tectus; mandibulis exsertis in medio dente majori armatis apicibus subfurcatis; clypeo deflexo trigono, thorace ferè ut in *L. bilunifero*, femoribus rubro-corallinis. Long. corp. ♂ lin. 31, ♀ 28. Affinis *L. villoso*, Hope.

Lucanus Mearesii. Niger, mandibulis exsertis in medio unidentatis, apicibus latè furcatis, dente parvo ferè ad basin posito; elytris nigro-æneis nitidis et sub-

tilissimè punctulatis capillisque flavis aspersis, tibiis rubro-piceis. Long. (mand. inclus.) lin. 28. Affinis præcedenti. From Sylhet.

Lucanus platycephalus. Niger, mandibulis thorace parùm longioribus, apicibus furcato-dentatis; caput anticè latum, ultra oculos porrectum; thorax transverso-quadratus, utrinque posticê fossulatus; elytra ferê glabra, corpus infrà concolor. Long. lin. 10.

Lucanus MacClellandi. Rubro-piceus, mandibulis capite thoraceque minoribus internè multidentatis, apicibus acutis; capite anticè fossula supra oculos impresso sparsimque subvarioloso; thorace angulis posticis obliquis; tibiis anticis externê subdenticulatis, posticis 4 inermibus. Long. lin. 8.

Dorcus Antæus. Niger, nitidus et glabratus, sub lente tenuissimè granulatus, latissimus valdê depressus; elytris lævibus, clypeo lato; mandibulis deplanatis, intus dente forti armatis, apicibus acutis; tibiis anticis denticulatis, posticis 4 unidentatis. Long. lin. 31.

Received from Dr. Cantor, and allied to Lucanus Titan, *Bdv.*, L. bilunatus, *DeH.* and L. bucephalus, *Westw.*

Dorcus Tityus. Niger, mandibulis capite thoraceque æqualibus, internè denticulatis, dente forti ferè ad basin posito, apicibus subfurcatis; caput thorace latius, clypeo subbifido; thorax semilunaris, lateribus in medio dilatatis; elytra gradatim attenuata; tibiæ anticæ multidentatæ. Long. lin. 29½. From Sylhet. Unique in Captain Parry's collection.

Dorcus Reichei. Niger, capite thoraceque æqualibus, mandibulis ad basin inermibus, ante apicem dente forti subbifido armatis, apicibus subfurcatis; elytra thorace parùm minora atro-castanea; corpus infrà nigrum. Long. lin. 24. From the Kasya Hills and also from Sylhet.

[lxxxiv.] Dorcus punctilabris. Niger, mandibulis exsertis; capite thoraceque minoribus, internè bidentatis, dentibus minutis apicibusque acutis; elytra lineato-punctata, punctis aspersis; tibiis anticis multidentatis, 4 posticis unidentatis. Long. lin. 17½.

Dorcus Blanchardi. Affinis præcedenti, niger; mandibulis exsertis, capite thoraceque minoribus subvarioloso-punctatis, dente robusto ad medium posito, secundo minuto, apicibusque acutis; elytra crebrissime punctulata; pedes sicut in specie præcedente. Long. lin. 16.

Dorcus cognatus. Affinis præcedenti, niger; mandibulis impunctatis, dente forti ferè in medio posito, 2ndo valdè minuto; elytra glabra nitida, lateribus lineato-punctatis; pedes ut in *D. Blanchardi.* Long. lin. 17. From the Himalayas. In Captain Parry's collection.

Dorcus Chevrolatii. Affinis *D. Saigæ*, Fabr. Niger, mandibulis exsertis arcuatis, capite longioribus, in medio intus lato dente armatis, apicibus subfurcatis; elytra piceo-castanea, ferè glabra, ad apicem gradatim decrescentia; corpus infrà nigro-piceum. Long. lin. 26.

Dynastes Cantori. Atro-piceus, cornu capitis recurvo robusto; thorace anticè bicornuto; elytris obscurè piceis, marginibus externè pallidè castaneis; corpus infrà rubro-piceum; tibiis tarsisque nigricantibus. Long. ♂ lin. 26, ♀ lin. 24.

Lamia Downesii. Affinis *L. Roylii*, Hope, at minor. Nigra, antennis corpore longioribus; elytris apicibus internè et externè mucronatis, ad basin scabris maculis decem flavis notatis; corpus infrà fusco-nigrum. Long. lin. 27.

Lamia Parryi. Griseo-nigra, antennis corpore longioribus articulis scabris, elytris ad basin mammillato-scabris maculis albis 8 notatis; corpus infra fusco-griseum, lateribus albo-vittatis. Long. lin, 17½. From Sylhet.

Mr. Edward Doubleday mentioned that he had observed a specimen of the female of the singular Lepidopterous genus Epicopeia, *Westw.*, in a collection of Indian insects recently arrived in England, and in which the antennæ are perfectly simple.

December 5th, 1842.—W. W. Saunders, Esq., F.L.S., President, in the Chair.

Mr. Westwood exhibited a splendid series of Goliath Beetles, including several new species from Southern Africa, from the collections of the Rev. F. W. Hope and Messrs. Melly, Turner and Parry.

Mr. Stephens exhibited a specimen of Steropus madidus, from the extremity of the body of which two long Filariæ had protruded themselves.

Mr. F. Bond exhibited portion of a larch from Bedfordshire, attacked by the larvæ of Callidium violaceum, which feed beneath the bark until nearly full-grown, when [lxxxv.] they bore to a considerable depth into the solid wood, in order to assume the pupa state.

Mr. Waterhouse exhibited three species of the Coleopterous genus Physogaster.

Mr. E. Doubleday exhibited specimens of two new species of the genus Papilio from the Gold Coast, as well as specimens of two distinct species of Leptocircus, of which he pointed out the differences: likewise a series of specimens and varieties of Papilio Ædea, *Clerck*, with which he considered Eterusia pulchella, *Hope*, to be identical; unless indeed there be some error in the figure of the antennæ of the latter insect. He likewise stated, that the insects exhibited at the last Meeting by Mr. S. Stevens as Nonagria crassicornis are identical with Nonagria Bathyerga, *Freyer*; and that Leucania Vectis, *Curtis*, is L. straminea, *Freyer*.

A memoir by A. H. Haliday, Esq., M.A., on the characters of certain British Chalcididæ, was read. (Trans. Ent. Soc. vol. iii.). Also—

"Description of a new species of the Hymenopterous genus Ænictus, belonging to the Dorylidæ." By J. O. Westwood.

Ænictus inconspicuus, *W.* Nigro-cinereus, pubescens, antennis rufo-piceis apicibus sensim acuminatis, articulo basali nigro; mandibulis longis acutis piceo-rufis, basi nigris; alis ferè translucidis, venis stigmateque ferè inconspicuis; pedibus perbrevibus; femoribus clavatis; pedunculo abdominis transverso anticè parùm angustiori disco haud canaliculato. Long. corp. lin. 4, expans. alar. lin. 6½.—Hab. in Africâ Australi: Drege. In Mus. W. W. Saunders.

January 2nd, 1843.—W. W. Saunders, Esq., F.L.S., President, in the Chair.

Mr. S. Stevens exhibited a living specimen of Odacantha melanura, recently captured in the Hammersmith marshes.

The President exhibited some wheat, recently imported from India, greatly infested with Calandra granaria, upon which he made some observations in reference to the very great advantages which would result to the Indian agriculturists in case the grain could be imported into Europe free from the weevil; whereupon Mr. Edward Doubleday stated, that in North America the Indian corn is attacked by a small beetle, belonging to the family Engidæ, within a very few months after it is full-grown.

Mr. Westwood read a notice of a new genus and species of British Homopterous insects belonging to the family Aphidæ, found in different stages of growth at the roots of Jerusalem artichokes. It is of a broad ovate form, destitute of wings, and of a white or dirty whitish colour; the hind feet are singularly inserted quite at the sides of the body, whereby the insect is enabled to throw them upwards and backwards and forwards; the hind tarsi are very long and apparently 1-jointed; the rostrum is elongated; the antennæ 6-jointed; the abdomen destitute of the saccharine tubercles. [lxxxvi.] Mr. Westwood proposes to name it Rhizobius Helianthemi, it not being previously described by Burmeister or Hartig.

Mr. Westwood also read an extract from a letter from M. Guérin-Méneville, containing a new distribution of the species of the genus Rhipicera, since published in the 'Species et Iconographie générique des Insectes.'

February 6th, 1843.—George Newport, Esq. (who had been elected President at the Anniversary on the 23rd January), in the Chair.

The President read a notice of the offer of two prizes of *5l.* *5s.* each by the Rev. F. W. Hope, for the best memoir on insects injurious to market gardens, and for a complete bibliographical synopsis of entomological works published in this country.

Mr. Longley exhibited a Gynandromorphous specimen of the common Vapourer Moth (Orgyia antiqua).

The President having communicated to W. W. Saunders, Esq., the late President of the Society, the request proposed at the Anniversary Meeting, that he would deliver his Anniversary Address this evening, Mr. Saunders delivered the same: whereupon a vote of thanks was unanimously passed to him, accompanied with a request that he would permit it to be printed for distribution amongst the Members, which has subsequently been done.

The following memoirs were read:—

"Notice of the occurrence in Sherwood Forest, Nottinghamshire, of Trypodendron lineatum, a new British species of wood-boring Coleoptera." By T. Desvignes, Esq.

"A Decade of new Coleoptera from Assam." By Captain Frederick Parry, F.L.S., &c.

1. Cicindela Assamensis, *P.* Atro-picea, elytris maculis 4 flavis, corpore infra nitido viridi trochanteribus rubris. Long. corp. lin. 9½.
2. Cincindela latipennis, *P.* Berylino-viridis, fronte albido, disco subcupreoæneo, elytris lunulis tribus lateralibus flavis alteraque fere media ad suturam vergente apicibus flavis. Long. corp. lin. 8.
3. Heptodonta (Gen. Cicindelarum) Hopei, *P.* Viridis, fronte albido, lateribus brunneis, thorace cylindrico elytrisque concoloribus immaculatis apicibus subtruncatis, corpore infra viridi, femoribus ad basin flavis. Long. corp. lin. 7½.
4. Calosoma nigrum, *P.* Nigrum, mandibulis porrecto-falcatis indentatis, thorace transverso-rotundato parvo, elytris thorace quadruplo longioribus, postice dilatatis et lineato-punctatis, punctis in 3 lineis positis, corpore infra atro, pedibus concoloribus. Long. corp. lin. 14.
5. Athyreus frontalis, *P.* Castaneus, antennis flavis, capite antice nigro, postice castaneo, thorace ad marginem anticum parum elevato, postice valde excavato, foveola utrinque fortiter impressa, pedibus fuscescentibus, femoribus rubris. Long. corp. lin. 8½.

[lxxxvii] 6. Mimela sapphirina, *P.* Læte cyanea, capite marginato virescenti, thorace nitido violaceo, elytrisque striato-punctatis sapphirinis, fascia violacea parum distincta, fere ad latera posita; corpore infra atro-piceo, femoribus pallidioribus. Long. corp. lin. 6½.

7. Alaus irroratus, *P.* Niger, maculis minutis flavis irroratis, capite fere atro, thorace obscuro subtilissime punctis asperso, elytris striatis, macula atra majori ad latera posita aliisque flavis per totum discum aspersis. Long. corp. lin. 15.

8. Eumolpus pyrophorus, *P.* Violaceus, capite læte cyaneo, thorace concolori, elytris igneo-æneis, humeris apicibusque cyaneis, corpore infra violaceo, pedibus concoloribus.

9. Lamia (Batocera, *Dej.*) Calanus, *P.* Atro-cinerea, antennis atris et scabrosis, thorace bimaculato, maculis albis, elytrisque ad apicem bispinosis, ad basin scabris, disco maculis albis 8 notato, corpore infra atro-cinereo, pedibus cinereo-tomentosis. Long. corp. lin. 26.

10. Lamia Porus, *P.* Atro-cinerea, antennis corpore longioribus scabrosis, thorace unimaculato, scutello concolori, elytrisque ad suturam et ad latera parum mucronatis, ad basin scabris, maculisque puniceis albo-notatis. Long. corp. lin. 20.

Obs.—Captain Parry suggests the possibility that the spots on this species may have been artificially coloured, although other allied species exhibit spots of orange and yellow running into red and pink.

"On the means by which the Honey-bee finds its way back to the Hive." By George Newport, Esq., President, published in the Transactions of the Society.

March 6th, 1843.—George Newport, Esq., President, in the Chair.

Mr. Edward Doubleday exhibited a volume of drawings of Lepidopterous larvæ, executed by the grandson of the late Mr. Standish. Also two plates of Indian Lepidoptera (Charaxes, *n. sp.*) since published in the 'Annales' of the Entomological Society of France.

Mr. F. Bond exhibited specimens of Polyommatus Arion and Anthrocera Loti, taken at Barnewall Wold, Northamptonshire, in July, 1842.

Mr. Westwood exhibited an extensive series of Goliath beetles of the genera Rhomborhina and Trigonophorus, from the collection of the Rev. F. W. Hope, including several new species recently obtained in a large collection of Indian insects. Also a drawing of a larva, received from J. Walton, Esq. as that of a species of Bruchus, found in the interior of beans, but which Mr. Westwood regarded as a lepidopterous larva (possessing four pairs of ventral and one pair of anal prolegs, in addition to six thoracic feet). No Lepidopterous larva had, however, been hitherto observed possessing such habits.

A letter was read from W. Spence, Esq., relative to the action of the pulvilli of flies and other insects capable of walking upon upright or inverted planes of glass, &c.

[lxxxviii.] "Descriptions of some new species of Alcides (a genus of Curculionidæ) from the Philippine Islands." By G. R. Waterhouse, Esq.

April 3rd, 1843.—George Newport, Esq., President, in the Chair.

Mr. W. W. Saunders exhibited a case of New Holland insects, some being of great rarity, including a new species of Rhipicera of large size.

Mr. F. Bond exhibited some specimens of Pachyrhynchi from the Philippine Islands, which had become discoloured by grease, but which he had restored to brilliancy by immersing them in pure naphtha and then covering them over with powdered chalk for twenty-four hours. This plan was equally applicable to Lepidopterous insects similarly circumstanced.

The following memoirs were read:—

"Descriptions of some new Curculionidæ from the Philippine Islands." By G. R. Waterhouse, Esq.

Continuation of a memoir on the Geotrupidæ and Trogidæ. By Mr. Westwood.

May 1st, 1843.—George Newport, Esq., President, in the Chair.

Mr. Marshall mentioned that in the United Service Museum he had observed an ants' nest, stated to be from abroad, precisely similar to one recently forwarded to the Society from Surrey as the construction of the wood-ant.

He likewise mentioned that the rare moth, Ephyra pictaria, had been taken in some plenty at Colchester, in April, 1842.

Mr. Evans exhibited some curious Crustacea recently received from China, and Mr. Westwood various new and interesting Indian insects of different orders, recently added to the collection of the Rev. F. W. Hope, including a fine Gryllus, like G. Donovani, a new subgenus allied to Derbe, some curious Chalcididæ, two species of Celyphus, &c., also a box of interesting Coleoptera and Hymenoptera which he had received from the Berlin Museum.

Mr. S. Stevens exhibited a living specimen of an Indian Harpalideous insect resembling Platynus angusticollis, found in an importation of plants from Bombay. He also stated that a specimen of Cermatia livida had been found alive on board a ship recently arrived from Madeira.

Mr. Ingpen exhibited a fine specimen of the North American Saturnia Cecropia, reared from the chrysalis state by the Rev. Albert Badger.

The completion of Mr. Westwood's memoir on the Geotrupidæ and Trogidæ was read.

After noticing the views published by MacLeay and Latreille as to the relations and classification of the Geotrupidæ and Trogidæ, the author proceeds to describe those genera which possess 10-jointed antennæ and exserted mandibles and labrum, and which respectively belong to the two families above mentioned as thus characterized:—

[lxxxix.]	GEOTRUPIDÆ.	TROGIDÆ.
Antennarum clava	articulo basali infundibuliformi,	articulis liberis.
Maxillarum lobi	membranacei,	potius cornei, supero ciliato-dentato.
Labii lobi	plerumque porrecti,	plerumque retracti.

GEOTRUPIDÆ.

Antennæ 11-articulatæ ... ... Geotrupes, &c.
Antennæ 10-articulatæ.
  Prothorax haud canaliculatus.
    Tibiæ anticæ 3-dentatæ.

Mandibulæ uncinatæ ... ... Hybosorus.
Mandibulæ latiores.
Ungues bifidi.
Tibiæ posticæ in medio dentatæ ... ... Coilodes.
Tibiæ posticæ in medio inermes ... Silphodes.
Ungues simplices ... ... Chætodus.
Tibiæ anticæ 2-dentatæ ... ... Apalonychus.
Prothorax canaliculatus ... ... Anaides.

TROGIDÆ.

Antennæ 9-articulatæ.
Corpus breve, latum ... ... Ægialia.
Corpus longum, parallelum ... ... Chiron.
Antennæ 10-articulatæ.
Corpus supra planum, mentum profunde incisum ... Cryptogenius.
Corpus plus minusve convexum, mentum haud profunde incisum.
Caput sub pectus haud contractile, corpus haud globosum.
Pedes mediocres, tarsis gracilibus.
Prothorax maximus, anticè subbituberculatus ... Geobius.
Prothorax mediocris, haud anticè subbituberculatus.
Prothorax anticè plus minusve retusus, maxillarum lobus internus denticulatus.
Caput maris plerumque cornutum.
Mandibulæ 4-dentatæ ... ... Orphnus.
Mandibulæ 3-dentatæ ... ... Triodontus.
Caput inerme, mandibulæ 2-dentatæ ... Ægidium.
Prothorax et caput simplicia, maxillarum lobus internus in spinam acutam productus ... Ochodæus.
Pedes abbreviati, tarsis crassis ... ... Trox et Phoberus.
Caput sub pectus contractile, corpus globosum. ... Acanthocerus, and the subgenera separated by Germar in Zeitsch. f. d. Ent.

[xc.] The following new species are described in this paper:—

HYBOSORUS ORIENTALIS, *Hope MSS.* Niger, nitidus, clypeo punctatissimo marginato, thorace tenuè punctato; elytris striato-punctatis; tibiis anticis 3-dentatis. Long. corp. lin. 6.—Hab. India orientali.

HYBOSORUS THORACICUS, *Hope MSS.* Oblongo-ovalis, piceo-rufus; thorace rufo, nitido; capite thoraceque sub lente tenuè punctatis; elytris striato-punctatis; antennis luteis; tibiis anticis 3-dentatis. Long. corp. lin. 3½.—Hab. Senegallia.

HYBOSORUS PINGUIS, *W.* Latior, piceo-niger, elytris nigris, clypeo punctato, thorace sublævi; elytris striato-punctatis; pedibus piceis, brunneo-setosis; antennis fulvis; tibiis anticis 3-dentatis. Long. corp. lin. 3—4.—Hab. Sierra Leone.

COILODES, *W.* Insecta Americana. Typus generis *Hybosorus gibbus*, Perty.

COILODES CHILENSIS, *W.* Piceus, thorace ♂ rufo-piceo, excavatione magna antica, margineque antico in medio tuberculo prominenti instructo. Long. corp. lin. 3½.—Hab. Chili.

Coilodes castaneus, *W.* Piceo-castaneus, nitidus; thorace maris parùm excavato; elytris vix geminato-striato-punctatis; pedibus brunneis. Long. corp. lin. 2¾.--Hab. Columbia.

Chætodus, *W.* Genus novum. Insecta Americæ meridionalis incolæ.

Chætodus piceus, *W.* Piceus, nitidus; capite thoraceque rudè punctatis; elytris regulariter striatis, luteo-setosis; pedibus valdè setosis; antennarum clava lutea. Long. corp. lin. 3.—Hab. Brasilia.

Chætodus irregularis, *W.* Piceus, nitidus; capite thoraceque grossè punctatis; elytris irregulariter striatis, antennarum clava obscuriori. Long. corp. lin. 2½.—Hab. Brasilia.

Chætodus? basalis, *W.* Piceus, nitidus; elytris basi rufis, punctato-striatis; pedibus elongatis, gracilibus. Long. corp. lin. 2.—Hab. Cayenne. (Caput deest.)

Silphodes, *W.* et Anaides, *W.* See Journal of Proceedings for September, 1841 (*ante*, p. xli.) for an abstract of the characters of these two groups.

Apalonychus, *W.* Species unica ex insula Cuba.

Apalonychus Waterhousii, *W.* Fulvo-castaneus, nitidus, lævis, antennarum clava lutea; elytris tenue et irregulariter punctato-striatis, lateribus longè setosis. Long. corp. lin. 4.—Hab. Insula Cuba.

Cryptogenius, *W.* See Journal of Proceedings, September, 1841 (*ante* p. xli.).

Triodontus, *W.* Species unica. *Orphnus nitidulus*, Guérin, texte de l'Iconographie. Ex insula Madagascar.

[xci.] Ægidium (*Dej. Cat. sine descr.*). Insecta Americana.

Ægidium Columbianum, *W.* Nigrum, capite thoraceque lævibus, nitidis; elytris subpiceis, carinatis, et punctis ovalibus obsitis; ♂ pronoto tuberculo frontali et excavatione magna dorsali, ♀ pronoto canaliculato. Long. corp. ♂ lin. 9; ♀ lin. 7½.—Hab. Columbia.

Ægidium parvulum, *W.* Angustius, nigro-piceum obscurum, undique punctatum; elytris bicarinatis, pronoto canali dorsali sub-obsoleto. Long. corp. lin. 5½.—Hab. Insula Guadeloupe.

Ægidium Hædulus, *Dej. Cat.* Nigrum, nitidissimum; pronoto ♂ in medio valdè depresso, punctato, lateribus angulato-elevatis, tuberculoque frontali in utroque sexu armato, ♀ impressione seu canali lato, minime profundo, frontali, elytris magis rotundatis et punctatis, punctis in strias irregulares dispositis. Long. corp. lin. 5—4.—Hab. Brasilia.

Ægidium? Guianense, *W.* Brevè convexum, castaneum, pronoto posticè parùm angustato; mandibulis extùs cornu obtuso armatis. Long. corp. lin. 4½.—Hab. Guiana.

Orphnus Mysoriensis, *W.* Brunneus seu nigro-piceus, tuberculo elevato in medio marginis postici prothoracis; elytris irregulariter punctatis. Long. corp. lin 5—4⅓.—Hab. India orientali, Mysore.

Orphnus picinus, *W.* Piceo-niger, nitidus; capite ♂ cornu erecto, prothoraceque excavatione magna media, margine postico marginato; elytris striis irregularibus, parùm impressis. Long. corp. lin. 4½—4.—Hab. India orientali, Bombay.

Orphnus impressus, *W.* Piceus vel rufo-piceus, capite posticè in ♀ tuberculo parvo armato pronotoque anticè excavatione triangulari instructo. Long. corp. lin. 3½—4.—Hab. India orientali centrali.

Orphnus nanus, *W.* Niger aut castaneus, nitidus, oblongus; capite ♂ cornu brevi, erecto, et pronoto semicirculariter excavato, excavatione haud ultra medium pronoti extensa, lateribusque vix elevatis et in tuberculo terminatis; capite pronotoque vagè punctatis, elytrisque irregulariter striatis, punctisque majoribus in strias rudes dispositis. Long. corp. lin. 2¾.—Hab. India orientali centrali.

Orphnus Meleagris, *Dej. Cat.* (*ined.*) Latus, castaneo-fulvus; elytris stria suturali punctisque irregularibus, capite cornu elevato, conico frontali, pronotoque valdè excavato, lateribus conico-elevatis, versus caput rotundatis. Long. corp. lin. 5.—Hab. Senegallia.

June 4th, 1843.—George Newport, Esq., President, in the Chair.

Mr. S. Stevens exhibited specimens of the larvæ of Leucania straminea (Nonagria Vectis, *Curt.*), tolerably well figured by Freyer, which he had detected in the Hammersmith marshes feeding on the leaves of reeds, and which spin an external web in which they undergo their transformations; also a very large living British species of water-mite (Hydrachna geographica.)

[xcii.] Mr. Evans exhibited a specimen of the rare Agrotis puta, captured on the evening of the Meeting, in the Wandsworth road.

Captain F. Parry exhibited a box of Coleoptera from New Holland, Africa and India, including a new and very flat Lamellicorn insect belonging to the family Cetoniidæ, but having somewhat the form of Platygenia, with singular-shaped middle feet, from tropical Africa.

Mr. Saunders exhibited specimens of a species of Polydesmus and of Iulus pulchellus, which he had found extremely destructive at the roots of plants in gardens. The latter insect was stated by Mr. Newport to have been formed by M. Gervais into the genus Planiulus, but with insufficient characters. He also stated, in reference to the question of the habits of these insects and the best modes of their destruction, that they deposit their eggs from March to May, after which there is an interval of a few months, a second period of oviposition being in July and August. Mr. Ingpen doubted whether these insects ever attack perfectly healthy plants, but Mr. Saunders mentioned various instances of an opposite character.

The following papers were read:—

"Monograph of the Dipterous genus Ceria." By W. W. Saunders, Esq., F.L.S. (since published in the first part of the fourth volume of the Transactions of the Society).

A notice respecting the Prizes offered by the [illegible]v. F. W. Hope.

"Observations on the sexual distinctions and mode of copulation of an Indian species of Mutilla." By Captain Boys.

Mr. Westwood having suggested that one of the statements in Captain Boys's letter respecting the transporting of prey by a winged Mutilla, appeared to him to apply to a winged female Scolia rather than to a winged male Mutilla, as no male fossorial hymenopterous insect had been hitherto observed to possess such habits, Mr. Doubleday stated that he had secured many specimens of Monedula in the United States in the act of capturing gad-flies (Tabani), whence they are termed horse-guards, and that all his specimens proved to be males.

Mr. Westwood exhibited drawings of and made some observations upon the portable nests of the larvæ of different species of Chlamys.

July 3rd, 1843.—George Newport, Esq., President, in the Chair.

Mr. Samuel Stevens brought for exhibition a box of insects from Dorking, in which were specimens of Claviger foveolatus taken from the nest of Formica flava; also Molorchus minor, Micronyx Jungermanniæ, Tichius lineatulus, &c.; also a box from Charlton and Plumstead, in which were Acalles Ptinoides, A. roboris, Pœcilus lepidus, &c.; also the following moths from the Hammersmith marshes: Leucania straminea, reared from the larvæ exhibited at the last Meeting, Leucania obsoleta, Sensia sericea, Nudaria senex, Chilo phragmitellus and gigantellus, the latter being most probably the female of the preceding insect.

[xciii.] Mr. Walton exhibited specimens of Erirhinus Chamomillæ, and Mr. Rich a female Goliathus, apparently identical with G. regius, *Klug*.

A paper was read by Mr. Westwood on the Indian genera Trigonophorus and Rhomborhina, published in vol. iv. part 1 of the Transactions.

August 7th, 1843.—George Newport, Esq., President, in the Chair.

Mr. Westwood exhibited a male specimen of Tengyra Sanvitali, taken during the last month by sweeping in hedge-rows near Ascot Heath.

Mr. Saunders exhibited a specimen of the Australian genus Cilibe, which had been captured alive in a garden near London. Also some pupæ of a small Homopterous insect which had proved very injurious in the oak plantations throughout extensive districts in Scotland, by raising blisters upon the leaves. Also specimens of a small Dipterous insect (Phytomyza lateralis), which attacks the petals of the pansy by puncturing them, as was stated, with the ovipositor, and then sucking out the colouring matter with the haustellum.

Mr. Marshall exhibited a remarkable specimen of Hipparchia Galathea, of a white colour, with the ordinary markings obliterated, and Mr. Evans a specimen of Lamia Textor, taken near Canterbury in July.

The following memoirs were read:—

"On the Insects residing in Bramble-sticks." By Mr. F. Smith. (Published in the first part of the fourth volume of the Transactions of the Society).

"Description of a new species of Ceria." By Mr. W. W. Saunders. (Published in the first part of the fourth volume of the Transactions of the Society).

"On some exotic species of Aphodiidæ." By Mr. Westwood.

This memoir contained a detailed description and figure of the hitherto insufficiently characterized Euparia castanea, *Enc. Méth.*, also of the following new species:—

Euparia nigricans, *W.* Piceo-nigra, capitis parte antica tarsisque rufescentibus, pronoti angulis anticis porrectis, posticis latioribus rotundatis, elytrorum angulis humeralibus acutè porrectis. Long. corp. lin. 2½.—Hab. ——? In Mus. Dupont.

Ryparus Desjardinsii, *Guérin MSS.* Niger opacus punctatus, luteo-squamosus, pronoto costis 6 longitudinalibus, intermedio utrinque interrupto ante medium; elytrorum sutura costisque 4 (in singulo) elevatis glabris, costis utrinque punctatis; antennis luteis. Long. corp. lin. 2½.—Hab. in Insulâ Mauritii: Desjardins. In Mus. Hope.

September 4th, 1843.—Edward Doubleday, Esq., V.P., in the Chair.

Dr. Becker, of Wiesbaden, exhibited a new species of Papilio from South America, and also a specimen of the very rare P. Protodamas.

[xciv.] Mr. S. Stevens exhibited specimens of Sibinia arenaria, Mononychus Pseudacori, Cicindela germanica, Micronyx pygmæa, &c., recently captured in the Isle of Wight; also of Apion Schönherri, Choragus Sheppardi, Mecinus circulatus, and various Lepidoptera, the latter captured by daubing sugar upon the trunks of trees in the neighbourhood of Arundel.

Mr. F. Smith exhibited specimens of Platypeza subfasciata ? (a Dipterous insect varying greatly in the two sexes), reared from Fungi from Birch Wood; also Pissodes Pini from Weybridge.

Mr. Evans exhibited specimens illustrating the natural history of Mamestra Brassicæ and Euthalia impluviata; also a specimen of Margaritia diversalis, taken by himself either in Yorkshire or at Darenth Wood in June last.

The following papers were read:—

"Notice of a Gynandromorphous specimen of Smerinthus Populi." By George A. Thrupp, Esq.

"Description of an ancient Irish Amulet made in the form of and used as a charm against the Murrian Caterpillar." Communicated by W. F. Evans, Esq.

"Descriptions of some new species of Exotic Spiders, and two species of Pœciloptera." By A. White, Esq., by whom some additional observations were made on the study of Arachnology and upon the structure of the nests of two British species of spiders. He likewise read an extract from Abbott's MSS. in the British Museum, on the habits of one of the fossorial Hymenoptera which collects spiders for the provisioning of its nest.

October 2nd, 1843.—George Newport, Esq., President, in the Chair.

Captain Parry exhibited a box of Coleopterous insects from Colombia, including Megasoma Elephas, a curious genus allied to Megalopus, and another apparently allied to Ancistrosoma.

Mr. Westwood exhibited a gynandromorphous specimen of Endromis versicolor from the collection of Dr. Becker, the antennæ and wings on the left-hand side being masculine, and those of the right side being female.

The Rev. F. W. Hope exhibited a specimen of the larva of Acilius, voided by a boy at Tunbridge Wells.

The following memoirs were read:—

"Description of new species of exotic Coleoptera." By the Rev. F. W. Hope, F.R.S.

Lucanus Parryi, *Hope*. Niger nitidus, mandibulis longitudine capiti æqualibus, apicibus acutis supra dentatis; elytris glabris; tibiis anticis externè serratis, posticis unispinosis. Long. corp. lin. 16½; lat. lin. 5¼. Affinis *L. Nepalensi*, Hope.—Hab. in Agro Nepalensi. Mus. Parry.

[xcv.] **Lucanus Vitulus**, *Dejean* (*ined.*) ♀. Niger nitidus glaber, mandibulis brevibus acutis; thorace marginato, angulis anticis haud productis, posticis parùm rotundatis; tibiis anticis externè denticulatis, posticis 4 in medio unispinosis. Long. corp. lin. 16; lat. lin. 6.—Hab. in Javâ. Mus. Buquet.

Lucanus (Hexarthrius) Buquettii, *Hope*. Niger, mandibulis exsertis arcuatis, apicibus 2-furcatis, introrsum crenatis unidentatis denteque majori ferè basali; capite thoraceque scabriusculis; tibiis intermediis 1-spinosis, posticis 2 inermibus. Long. corp. lin. 35; lat. lin. 9.—Hab. in Javâ. Mus. Buquet.

Pholidotus Reichei, *Hope* ♀. Niger, capite thoraceque rugosis, hoc tuberculato, mandibulis apice acutis; thoracis lateribus serratis, angulis posticis acutis; elytris ferè glabris obscuris, lineâ elevatâ obliquâ erosâ, e humeris ad medium disci extensâ; pedibus simplicibus. Long. corp. lin. 15; lat. lin. 5.—Hab. in Colombiâ. Mus. Reiche.

Callirhipis Laportei, *Hope*. Rubro-testaceus seu fulvus; antennis nigris, articulo basali antrorsum flavescente; thorace lineis tribus nigris; elytris maculis tribus basalibus apicibusque nigris; pedibus nigris; femoribus fulvis. Long. corp. lin. 6¼; lat. lin. 1½.—Hab. apud Coban. Mus. Hope.

Saperda ocularis, *Hope*. Aurantia, antennis nigro-griseis pubescentibus, capite antrorsum atro, oculis albo cinctis; thorace posticè nigro, maculis 5 albis; elytris octo maculis albis atro-cingulatis ornatis; pedibus atro-griseis. Long. corp. lin. 4¼; lat. lin. 1¼.—Hab. in Amer. merid. Mus. Hope.

"Description of a new exotic genus of Longicorn Beetles, remarkable for the dilatation of the anterior femora." By J. O. Westwood, F.L.S.

Eupromera, *Westw*. Corpus breve, crassum, subdepressum. Caput breve, verticale, pronoto parùm angustius. Antennæ ferè corporis longitudine, 11-articulatæ, subfiliformes; prothorax subquadratus, dorso lateribusque subtuberculatis, pone medium subconstrictus; elytra lateribus parallelis, apice inermia. Femora antica maxima inflata, tibiæ anticæ curvatæ, tibiæ 4 posticæ in medio haud scopiferæ.

Eupromera Spryana, *Westw*. Griseo-villosa fusco luteoque parùm variegata, apicibus articulorum antennarum fusco-cinctis, elytris fusco tuberculatis. Long. corp. lin. 3½.—Hab. in Brasiliâ. In Mus. Hope et Westwood.

"Account of the Fire-flies observed at the Baths of Lucca." By G. Woolmer, Esq.

These insects, which are termed Luccioli by the natives, evidently from their bearing light, belong to the same family (Lampyridæ) as the English fire-fly; but the females are winged, and in the spring and early part of the summer are seen in all [xcvi.] directions on the wing, emitting a phosphoric kind of light at intervals; thus producing a most beautiful effect where they abound in company with the glow-worm. Previous to a storm they are more than usually active, and their light much more brilliant. In the day-time they rest on the bushes in a state almost of torpor. Their flight is very regular, the light appearing and disappearing at short distances. They entirely disappear shortly after the hay is gathered in. It is considered that it is the female which emits the light, thus attracting the male. The lower (posterior) part of the body, which emits the light, is of a sulphur colour, and is observed to shine for a short time even after death. When alive, any irritation offered to the part causes the insect to emit its light.

"Descriptions of various exotic Crustacea, Coleoptera and Homoptera." (Annals of Natural History, vol. xii. p. 342.) By Adam White, Esq.; by whom it was stated, that a nest of Pelopæus provisioned with spiders had recently been presented to the British Museum from Sierra Leone by Mr. Whitfield.

November 6th, 1843.—G. Newport, Esq., President, in the Chair.

Mr. F. Bond exhibited two distinct species of Geophilus, which he had ascertained to possess luminous powers. Also a species of Ornithomyia (O. viridis?) which he had found to be parasitic both on bats and swallows.

Mr. W. F. Evans exhibited a specimen of the common hornet, which he had confined in a small box, in which, some time subsequently, were found several specimens of the Dipterous genus Molobrus, which Mr. J. F. Stephens suggested had been hatched from eggs deposited upon the hornet after death, and whilst still damp. He also exhibited the larva and pupa of a Lepidopterous insect (most probably the Diatræa sacchari, *Guilding*) which he had found in sugar-canes brought from Madeira. Also specimens of Trechus fulvus captured during flight after dark by candle-light.

Mr. Yarrell exhibited a specimen of Lemargus imbricatus which had been found parasitic upon the short sun-fish. Also specimens of Cecrops Latreillei from both the sun-fish and tunny.

A paper by G. R. Waterhouse, Esq., containing "Descriptions of some new species of Curculionidæ from the Philippine Islands," was read.

Mr. Walton brought under the notice of the Meeting the following case, in which some fixed rule of nomenclature seemed necessary. It appears that the Curculio Alliariæ of Linnæus belongs to the modern genus Magdalis. A very careful description of a species of the modern genus Rhynchites has, however, been published by Paykull, who applied the specific name of Alliariæ to it, expressing at the same time his doubts whether it were really the Curculio Alliariæ of Linnæus. Paykull's specific name has subsequently been altered by Stephens and Schönherr, as they considered, that as it was not the species described by Linnæus under the name of Alliariæ, it was
[xcvii.] improper to give the Linnæan name to it. After considerable discussion among the Members present, it appeared to be the general opinion, that as Paykull had first given a good description of Rhynchites Alliariæ, it was proper to retain his specific name, citing *his* name, however, and not that of Linnæus, more especially as the Linnæan species belongs to a distinct modern genus, so that no confusion could arise from the employment of the same name in both genera.

December 4th, 1843.—G. Newport, Esq., President, in the Chair.

The Secretary announced that a new part of the Proceedings of the Society was ready for distribution.

Mr. Westwood exhibited a drawing of a new genus of Goliath Beetles, received by Mr. Melly from Signor Passerini (Amaurodes Passerinii). Also a box of beetles from the Ashantee district, including a new genus of Goliath Beetles (Asthenorhina Turneri), Paussus microcephalus, and other rare and new species from the collection of Mr. Turner.

The Rev. F. W. Hope exhibited a series of drawings of the transformations of various Indian Lepidoptera, made by Mr. Ezra Downes.

The following memoirs were read:—

"On the Existence of Thoracic Branchiæ in the Imago state of the Neuropterous genus Pteronarcys." By George Newport, Esq., President E.S. (Annals of Natural History, vol. xiii. p. 21). In reference to this memoir Mr. Westwood stated, that he had detected some thoracic appendages in the genera Ptychopteryx and Helophilus, described and figured in his 'Introduction to the Modern Classification of Insects,' vol. ii. fig. 126, 7. p. 526. note †, and p. 557, which he considered to be analogous to the branchiæ discovered by Mr. Newport in Pteronarcys. The latter gentleman however objected to this analogy, as the organs in question existed simultaneously with the true spiracles. Mr. E. Doubleday, in reference to a suggestion made by Mr. Newport, stated that he had always noticed that the North American species of Chauliodes are on the wing in rainy evenings.

"On the proceedings of a species of Trombidium which infested the Plane-trees in the Regent's Park during the past summer." By George Wilson, Esq., M.R.C.S. Communicated with additional notes by A. White, Esq.

At the beginning of September Mr. Wilson's attention was directed to the trees, several of which had the trunks and branches entirely or partially covered with a very delicate web, upon which myriads of a small Arachnidous insect were running to and fro, extending their webs rapidly along the branches. The web was so fine as to appear like a thin compact layer of varnish upon the stems of the trees; and from the vast [xcviii.] number of the insects, the grey web appeared dusted with a reddish powder, the insects being of a light orange colour inclining to brown. From the web so completely enveloping the tree and obstructing the vital influence of the atmosphere, the leaves became withered and fell. This was especially the case with the plane-trees, the elms and horse-chestnuts being free from them. The weather for several days previously and subsequently was fine and sultry, but in the course of a few days a heavy fall of rain, accompanied by a thunder-storm, put a stop to the injury by destroying the insects. On placing a portion of the web with its inhabitants in a bottle, Mr. Wilson observed that in about an hour a beautiful transparent cylinder had been spun within the bottle from the base to the top, impinging against the side of the bottle at about half its height; and it was remarkable that there was not a single thread stretched across the inside of the cylinder, nor was a single insect inclosed within it. Having completed their first cylinder, they threw a second around it more slender than the former, leaving only a small interval between them.

Mr. White considered the species to be the Trombidium tiliarium, *Herm.*, or an allied species, and distinct from the Acarus telarum, *Linn.*, and Trombidium socium, the habits of which, as described by Hermann, were mentioned by Mr. White.

Mr. Walton informed the Meeting that a specimen of the true Curculio Bacchus, *Linn.*, but not of Marsham, had been captured on the 20th of September last on a young oak-tree at Birchwood, Kent, by Mr. B. Standish; Mr. J. F. Stephens however stated that he had taken both R. Bacchus and auratus from the same tree at Crayford.

January 1st, 1844.—George Newport, Esq., President, in the Chair.

An extract from a letter addressed by the Rev. Mr. Savage to the Rev. F. W. Hope was read, giving an account of the capture of a new species of Goliath Beetle on the west coast of Africa, Mecynorhina Savagii (Harris, Journ. of Boston Nat. Hist. Soc. vol. iv. pl. 21; Westw. Arc. Ent. ii. pl. 81. f. 1, 2).

Extracts were also read from two letters addressed to Mr. Hope by C. D. E. Fortnum, Esq., giving some account of the Entomology in the neighbourhood of Port Adelaide, and mentioning some particulars respecting the reproduction of the limbs in a species of Phasmidæ, Diura violascens, *Gray*, a larva of which (about one inch long and having much the appearance of a Bacillus) had its left intermediate leg broken off when captured. It fed on the young leaves of the gum-tree, Eucalyptus, and grew very fast. On the first moult after the accident a small leg appeared on the old stump, but with a withered appearance, and apparently the joints were not formed. At the second moult the leg had grown to half its natural size, with all the joints perfect. The third moulting produced the pupa with the leg about two-thirds of the original size. On the change to the imago the limb had regained its full size. Mr. Fortnum adds, that the young Phasmidæ invariably eat the old skin after moulting. He also mentions the capture of a species of Mantispa and one of Ascalaphus. In a [xcix.] subsequent communication he mentions the capture of several apparently new species of Phasmidæ, and states that Diura violascens and roseipennis are the sexes of the same species, having reared several from the larva. He had collected a great many species of ants, and several new predaceous beetles (including a beautiful Harpalus with the head and thorax splendid green); likewise several new aquatic beetles and Buprestidæ, and two new species of Onthophagus; but he had met with no Necrophaga. The little insect allied to Elaphrus is exceedingly abundant, and he had collected three species of Adelotopus, one described by Mr. Hope in Trans. Ent. Soc. vol. i., and two others; he had also seen one or two more, and had collected another species of Scarites, a species of Trox (very abundant), nine Melolonthidæ, three species of Mantispa and seven of Myrmeleon.

In reference to the Phasmidæ noticed by Mr. Fortnum, the President stated that he considered Mr. Fortnum's communication to be one of great interest, as affording a further proof that reproduction of the limbs takes place in true insects. He also stated that he is equally sure that reproduction of lost parts takes place in the Myriapoda, as he formerly expressed his belief when exhibiting an instance of what he regarded as the first noticed occurrence of this fact in a Scolopendra, at the Meeting of this Society in November, 1839. In consequence of the suggestions made by Mr. Westwood on that occasion (that the limb in the specimen in question had not been reproduced, but was only an instance of retarded development of the original limb), and at a subsequent Meeting of the Society (November 2, 1840), Mr. Newport had instituted a series of experiments on the Iulidæ and Lithobii, in which reproduction both of the antennæ and legs had taken place, and, in one instance, the reproduction of some of the legs was repeated a second time in the same individual Lithobius. He stated also that reproduction of lost parts does not take place after the individual has acquired, or has very nearly attained, its adult size.

Mr. Marshall also stated that he had observed a specimen of the common species of Blatta, one of the legs of which was much smaller than the rest.

Mr. Yarrell mentioned, in réference to the continued growth of the limbs in the Crustacea, that it appeared to have its limits, as he had observed lobsters several years old which had certainly not lately cast their shells, which they did not fill.

An extract was also read from a letter addressed by Colonel Hearsey to Mr. Westwood, giving an account of the habits of a minute species of the genus Diopsis in India.

This species is very closely allied to Say's D. brevicornis,* and was captured by [c.] Colonel Hearsey in different months and various localities; some on window-

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* It may be thus characterized:

Diopsis Hearseiana, *W.* Brevis, robusta; capite fulvo, nigro vario, cornubus oculiferis abbreviatis crassis, apice nigris; thorace griseo-nigro, spinâ brevi panes in June, some on orange and citron leaves in gardens in July, and some in the middle of August on cucumber leaves; they appear to feed either on the sweet deposit of the Aphis, or on the Aphides* themselves. The different kinds of Diptera which he had collected in the latter situation were numerous, some very curiously marked, and others very minute and of brilliant colours.

A memoir, containing descriptions of two species of Sacred Beetles from Southern Africa, was read by J. O. Westwood, F.L.S., &c.

SEBASTEOS, *Westwood*.

Typus Scarabæorum sacrorum *Heliocantharo* magis affinis.

Antennæ articulis 3 et 4, 5to duplò longioribus, 5to et 6to brevibus; clypeus radiatus, subtùs tridentatus. Tibiæ anticæ angulatæ, extùs 4-dentatæ, dentibus 2 apicalibus inter se remotis, intùs serrulatæ, denteque medio armatæ. Tarsi 2 postici articulis subclavatis.

Species unica, SCARABÆUS (SEBASTEOS) GALENUS, *Westw.* Niger, nitidus; capite magno varioloso-punctato, pronoto punctato, margine postico lævi; elytris striâ suturali alterisque 5 tenuibus sub lente punctatis. Long. corp. lin. 14.—Hab. in Africâ meridionali. D. Burke.

SCELIAGES HIPPIAS, *Westw.* Niger, nitidus; capite sub lente tenuissmê punctato, clypeo cornubus 2 mediis porrectis, pronoto ferè lævi, elytrisque sublævibus et minus nitidis, singulo striis 6 vix discernendis; tibiis anticis haud in medio angulatis, extùs 4-dentatis et serrulatis, metasterno anticè producto. Long. corp. lin. 8. Hab. cum præcedente.

February 5th, 1844.—GEORGE NEWPORT, Esq. (who had been re-elected President of the Society at the Anniversary Meeting on the 22nd January), in the Chair.

The President exhibited a specimen of Hypena rostralis, which had continued alive in a state of hybernation since the 1st of September last.

Mr. Edward Doubleday exhibited a large box of North-American Lepidoptera, collected by Mr. Barnstone near the Albany River, in a climate nearly corresponding with that of Lapland, and remarkable on account of a very large proportion of the species being apparently identical with those of this country. Some species, and even genera, were, however, quite unlike any of those known in Europe, amongst which was a very large species of Hepialus, two new species of Alypia, &c., whilst some of the species were evidently identical with those of Florida, thus exhibiting a very wide geographical range.

[ci.] Mr. F. Bond exhibited a specimen of Pontia Rapæ, evidently but recently disclosed from the chrysalis, which he had captured during the month of January. Mr. Walton exhibited a monstrous specimen of Otiorhynchus picipes, each antenna having only four joints in the funiculus instead of the ordinary number.

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utrinque sub basin alarum aliisque duabus apicalibus albidis longè setigeris; abdomine nigro nitido; pedibus flavescentibus, femoribus anticis intùs fusco maculatis, tibiisque anticis nigris, alis hyalinis. Long. corp. lin. 2; expans. alar. lin. 4.

* Col. Sykes's observations on the predaceous habits of D. Sykesii might lead to the opinion that it was upon the Aphides themselves that the Diopsis feeds.

The following memoirs were read:—

"Description of a genus and species of Syrphideous Diptera new to Britain." By P. Desvignes, Esq.

Didea, *Macquart* (Enica? *Meigen*). Antennæ porrectæ, articulo 3tio elliptico, compresso, intus attenuato, setâ tertiâ parte longitudinis insertâ, nudâ; oculi nudi; abdomen oblongum, valdè depressum, limbatum; cellula marginalis alarum aperta, submarginalis pediformis.

Didea fasciata, *Macq.* Face and forehead yellow; antennæ inserted on a prominence, black; thorax metallic-green, with yellow hairs on the sides; scutellum yellowish; abdomen with two large lateral yellow spots on 2nd segment, 3rd and 4th segments with a broad yellow band posteriorly crescent-shaped; four anterior thighs black at base; tibiæ yellow; hind legs and all the tarsi black, the former yellow at the knees; wings hyaline, with a faint tinge of yellow; submarginal and mediastinal cell brown. (Syn. Enica Foersteri?).

This genus approximates to Eristalis in having the submarginal cell pediform, and to Syrphus, *Macq.*, in having the marginal cell open; but differs from both in its antennæ. It appears very rare abroad. Taken in October, 1841, at Birch Wood. In Mus. Desvignes.

"Descriptions of some new species of the Lamellicorn genus Parastasia, *Westw.*" By Professor Erichson, of Berlin.

Parastasia scutellaris, *Erichs.* Supra lutea, capite scutelloque nigris, infra nigra, abdominis lateribus luteis. Long. lin. 7.—Hab. in insulâ Riouw, propè Sumatram. Mus. Reg. Berol.

Parastasia dimidiata, *Erichs.* Nigra, nitida, elytris posticè luteis, pygidio rufo. Long. lin. 4½. Hab. in insulâ Riouw. Mus. Reg. Berol.

Parastasia nitidula, *Erichs.* Nigra, nitida, elytris fusco-æneis politis. Long. lin. 4.—Hab. in insulâ Bintam, propè Sumatram. Mus. Reg. Berol. Omnes sunt genuinæ Parastasiæ.

"Descriptions of some new exotic species of Lucanidæ." By J. O. Westwood, F.L.S.

Ægus platycephalus, *Guérin MSS.* Niger, tenuissimè punctatus, capite et pronoto latissimis; mandibulis capite longioribus, apice falcatis, intus ante medium dente valido, suberecto, obtuso, instructis; pedibus et elytris piceis, his 6-striatis; tibiis 4 posticis in medio 1-dentatis. Long. corp. mand. excl. lin. 16. Mus. Guérin.

[cii.] Ægus æqualis, *Hope MSS.* Piceo-niger, capitis et pronoti lateribus magis piceis, lævis, oblongus, elytris 6 punctato-striatis; capite lato; mandibulis capite parùm longioribus falcatis, singulâ ad basin dente supero armatâ. Long. corp. mand. excl. lin. 11½.

Ægus Malabaricus, *Hope MSS.* Niger, elytris opacis punctatissimis, singulo 7-striato; striis alternatis, profundioribus; capite angusto, lateribus angulatis, pronoto ferè quadrato; mandibulis depressis, capite duplo brevioribus, subtriangularibus, intus dente armatis. Long. corp. (mand. excl.) lin. 10.—Hab. in Malabariâ.

Ægus distinctus, *Hope MSS.* Niger, nitidus, capite et pronoto elytrorum latitudine; mandibulis falcatis, basi supra dente acuto armatis; pedibus et elytris piceis; his 7-striatis, lateribusque punctatis. Long. corp. (mand. excl.) lin. 12¼.

A correspondence between Messrs. Melly and Westwood on the extent of the detrimental effects of insects in dissipating the active principle of vegetable manure was also read.

March 4th, 1844.—George Newport, Esq., President, in the Chair.

The President announced the terms and subjects of the Essays for two prizes of £5 each, offered by the Rev. F. W. Hope, one being upon the natural history and medical properties of vesicatory insects, and the other upon the natural history and early stages of the genus Stylops.

The Secretary announced that the Address delivered by the President at the last Anniversary Meeting had been printed for distribution among the Members.

Mr. Evans exhibited a monstrosity in the common moth Arctia Caia, in which the antennæ and wings of the left side of the body were much smaller than those of the other side, without, however, showing any appearance of gynandromorphism.

Mr. S. Stevens exhibited a remarkable variety of Melitæa Euphrosyne, taken at Darenth Wood; likewise varieties of Fidonia atomaria and Cidaria fluctuata; also a fine specimen of the rare Charæas nigra, taken at Leith Hill in September last.

Mr. E. Doubleday exhibited a specimen of a new and large species of Polyommatus from the Missouri, being the fifth species of that genus which inhabits North America.

Mr. Westwood exhibited four hitherto-unfigured Assamese species of the genus Papilio, which he had received from Major Jenkins (since published in the 'Arcana Entomologica').

He also exhibited a specimen of Crœsus septentrionalis with one of the hind feet much smaller than the other, which he regarded as a case of arrested development; and also a large apterous Phasma from Mexico, collected by Mr. Coffin, one of the hind legs of which was also rather smaller than the other, but destitute of the small foliaceous appendages of the femur, tibia and basal joint of the tarsus, and which he regarded as a case of reproduction in consequence of the details given by Mr. Fortnum [ciii.] at the Meeting of the Society on the 1st of January last; stating at the same time his opinion, that in those orders of insects alone which undergo an incomplete metamorphosis (having active larvæ and pupæ similar to the imago), reproduction of limbs takes place, those insects which undergo a complete metamorphosis being considered by him as incapable (so far at least as hitherto observed) of undergoing such a reproduction; and which opinion seemed to be confirmed by the remarks of M. Schneider upon the genus Raphidia, recently published in his elaborate monograph of that genus. The President, however, was unwilling to admit that the case mentioned by Mr. Westwood was an instance of retarded development, and contended that reproduction was capable of occurring throughout all the orders of insects, as it was now proved to be throughout the Crustacea, Arachnida and Myriapoda; and Mr. Desvignes mentioned the fact recorded by Reaumur, that the hairs of caterpillars, when shaven off previously to moulting, were reproduced on the shedding of the skin. [See the account of Mr. Newport's subsequent experiments on this subject given at the Meeting of the 7th October, 1844].

A memoir was read "On the Economy of the genus Palmon, *Dalm.*" By J. O. Westwood, F.L.S.

After alluding to the singular economy by which the female Ichneumonidæ are enabled to introduce their eggs into various substances, within which are contained the insects upon which their larvæ are destined to feed, and giving an extract from an anonymous writer in the Entomological Magazine respecting the production of specimens of one of the Chalcididæ from the egg-cases of the Mantidæ, the author states that the latter insect evidently belongs to the genus Palmon of Dalman (Swed. Trans. 1825), founded upon a species observed in gum copal, and that the Priomerus pachymerus of Walker is another species of the genus; and then illustrates the genus in detail, and describes the following species, the majority of which possess the same singular habits.

Sp. 1. PALMON BELLATOR, *Dalm.*

Sp. 2. PALMON CLAVATELLUS, *Dalm.*

Sp. 3. PALMON PACHYMERUS, (Priomerus pach., *Walker*).

Sp. 4. PALMON RELIGIOSUS, *Westw.*. Niger, subæneus; thorace tenuissimè punctato; antennis nigricantibus, articulo basali luteo; abdomine piceo, subtus magis luteo, dorso æneo tincto nitido; pedibus luteis, coxis posticis dentibusque femorum posticorum nigris, oviductu corpore ferè dimidio longiori (♀). Long. corp. lin. 1½.—Hab. in ovis *Mantidis religiosæ.* D. Kollar. Mus. Hope.

Sp. 5. PALMON INSULARIS, *Westw.* Cupreo-nigricans, vix tenuissimè punctatus, collari magis cuprescenti; antennis nigricantibus, basi fuscis; abdomine chalybæo-nitido, basi subluteo, oviductu vix corporis longitudine; pedibus anticis albidis, femoribus in medio infumatis, coxis et femoribus posticis cupreo-
[civ.] æneis, apice tarsisque albidis (♀). Long. corp. lin. 1½.—Hab. in ovis *Mantidis* ex "Ile de France." D. V. Audouin. Mus. Westwood.

Sp. 6. PALMON FRATERNUS, *Westw.* Cæruleo-viridis, tenuissimè punctatus; antennis crassiusculis luteis, apice fuscescentibus; abdomine purpureo nitidissimo, subtùs lùteo, oviductu abbreviato; pedibus luteo-fulvis; coxis et femoribus posticis æneis vel chalybæis, apice extremo luteis (♂ ♀). Long. corp. lin. 1¼.—Hab. cum præcedente. Mus. Westw.

Sp. 7. PALMON OBSCURUS, *Westw.* Niger, æneo vix tinctus, ferè lævis, opacus; antennis nigris, basi articuli 1mi luteo, articuloque apicali albido; abdomine nigro, submetallico, nitido, oviductu corpore ferè dimidio longiori; pedibus 4 anticis piceo-luteis, posticis nigricanti-æneis dentibus validis, tarsis luteis (♀). Long. corp. lin. 1½.—Hab. King George's Sound. D. Dr. J. Hooker. Mus. Westwood.

Sp. 8. PALMON MELLEUS, *Westw.* Lætè aurato-viridis, punctatissimus; abdomine melleo; antennis crassis, melleis, apice fuscis; pedibus melleis, coxis posticis, basi viridibus, spinisque femorum posticorum nigris (♂). Long. corp. ferè lin. 2.—Hab. in ovis *Mantidis Brasiliæ.* D. Klug. Mus. Westwood.

Subgenus novum PACHYTOMUS, *Westw.*

Palmoni congruit nisi abdomine maris plano-depresso elongato, spinis femorum posticorum tantum 4, articulo basali tarsorum omnium dilatato, necnon œconomiâ, habitanti in ficubus, more *Blastophagarum.*

Sp. 1. PACHYTOMUS KLUGIANUS, *Westw.* Cupreo-æneus, tenuissimè punctatissimus; antennis basi tantum luteis; abdomine piceo-fulvo apice nigricanti;

pedibus 4 anticis pallide flavescentibus, posticis piceis, geniculis luteis. Long. corp. lin. 1½ —Hab. in ficubus Ægypti. D. Klug. Mus. Westwood.

April 1st, 1844.—G. Newport, Esq., President, in the Chair.

Mr. S. Stevens exhibited a minute species of Hylesinus, together with a piece of bark, showing the mining habits of the preparatory states of this beetle.

Mr. Westwood exhibited both sexes of two species of the genus Ynca, Y. Sommeri (a new species closely allied to Y. Fabricii, if it be not a geographical variety thereof,) and Y. Beskii, from tropical America, sent to him from Hamburgh by M. C. Sommer, Esq.

He likewise exhibited specimens of a species of Cossonus found in great numbers embedded in a black brittle mass of matter, discovered in the interior of a barrow recently opened in Lancashire, and accompanied by notes from the Rev. Mr. Sibson, by whom they had been communicated to Dr. Holme of Manchester. Likewise drawings of the transformations of an Indian species of Anthrenus, and of Paussus (Ceratoderus) bifasciatus, *Kollar*, forwarded to him by Captain Boys.

[cv.] The Rev. F. W. Hope exhibited a case of insects recently received from Ezra Downes, Esq., captured in his garden near Bombay, including a new species of Derbe and other insects, accompanied by notes on the habits of a species of Cassida; another of a Cercopis, called the Cow-ant, (from emitting a saccharine fluid which the ants greedily drink,) and on several species of parasitic Hymenoptera (including a species of the genus Elasmus) reared from the cocoons of a small moth.

The following memoirs were read:—

Continuation of a memoir containing descriptions of New Holland Cryptocephalides. By W. W. Saunders, Esq., F.L.S., &c.

Div. 2. *Lateral margins of thorax dentate or uneven.*

Prionopleura, *W. W. S.* Head vertical; eyes reniform; antennæ as long as or longer than the body, filiform, with the six terminal joints somewhat more robust than the others; thorax subquadrate, with the lateral margins dentate or rugose, and the disc with elevated spaces; scutellum quadrate, elevated behind; elytra rugose. Type Cryptocephalus rugicollis, *Gray.*

Subdivision 1. *Elytra with longitudinal elevated ridges more or less distinct.*

Sp. 1. Prionopleura bifasciata, *Hope MSS.* Head rufous-brown, black above; antennæ black, with the 2nd, 3rd, and 4th joints varied with rufous; thorax rufous-brown, with a black central longitudinal patch, and two lateral lunate ones of black; scutellum black; elytra rufous-brown, deeply punctured with eight somewhat elevated longitudinal ridges, and two broad black transverse bands; femora black, rufescent at base; tibiæ rufescent, with the apex black; tarsi black. Length $\frac{3}{10}$ths of an inch.—Hab. New Holland. Mus. Hope.

Sp. 2. Prionopleura crucicollis, *Boisduval.* Head chestnut-brown, with a black frontal fascia; thorax rufous-brown, with a transverse black band, produced in front and behind into a short cross; scutellum black, shining; elytra deep rufous-brown, coarsely punctured with five distinct and three less distinct longitudinal ridges, with three short longitudinal black patches at the base, and an irregular transverse black central band less rufous-brown; femora with a black streak. Length $\frac{3}{10}$ths of an inch.—Hab. New Holland and Van Diemen's Land. Mus. Hope and Westwood.

Sp. 3. Prionopleura Hopei, *W. W. S.* Deep rufous-brown; head with a black band and spot; antennæ rather longer than the body; thorax black, with a narrow rufous-brown margin; scutellum black; elytra deep rufous-brown, deeply punctured with eight slightly elevated ridges and two black patches at the base, and a transverse central fascia. Length $\frac{22}{100}$ths of an inch.—Hab. Van Diemen's Land. Mus. Hope and Westwood.

[cvi.] Sp. 4. Prionopleura crux-nigra, *Hope MSS.* Dark rufous-brown; antennæ with the terminal joint black; thorax with a transverse black central band produced in the middle both before and behind, forming a cross; elytra with nine longitudinal ridges, the five nearest the suture well-defined, with a narrow longitudinal black streak on the shoulders, and a sickle-shaped patch near the suture extending nearly to the middle of the elytra, and then curving in a transverse direction to the outer margin. Length $\frac{1}{4}$th of an inch.—Hab. New Holland. Mus. Hope.

Sp. 5. Prionopleura flavocincta, *W. W. S.* Head rufous-brown, with a transverse black mark on the hind part of the forehead; thorax bright rufous-brown, with a broad transverse central band, dilated in the middle into a diamond shape; scutellum dark brown; elytra minutely punctured with nine distinct, somewhat elevated ridges, deep rufous-brown crossed by a broad orange band, margined with a black line on each side. Length $\frac{3}{10}$ths of an inch.—Hab. New Holland. Mus. Hope.

Continuation of a memoir containing descriptions of a new exotic Lucanidæ. By J. O. Westwood, F.L.S.

Lucanus faunicolor, *Hope.* L. mandibulis magnis porrectis, dente valido ante alteroque pone medium apicibusque serratis, totus supra luteo-fusco-pulverosus; antennis longis; tibiis omnibus inermibus. ♂ Long. corp. cum mand. unc. 1½. —Hab. in Oriente. In Mus. Buquet. An varietas L. metallici, *Bdv.?*

Lucanus Rafflesii, *Hope.* L. castaneo-rufus, nitidus; mandibulis scutello et sutura elytrorum nigris; capite et pronoti lateribus punctatis; tibiis 4 posticis in medio 1-dentatis, anticis 6-dentatis. ♀ Long. corp. unc. 1.—Hab —— ?

Lucanus sericeus *Hope.* L. niger, lateribus latê piceo-castaneis luteo-sericeis; mandibulis brevibus; tibiis anticis extus serratis et 3-dentatis, pronoto in medio angulato. Long. corp. lin. 10—Hab. in insulâ Javâ.

Lucanus reticulatus, *Buquet MS. inedit.* L. mandibulis brevibus, crassis, intus obtusè dentatis; subdepressus; niger, pronoto subquadrato, elytrisque squamoso-reticulatis. Long. corp. lin. 6. Hab. in Novâ Zealandiâ. Mus. Buquet.

Platycerus Oregonensis, *Westw.* (an Pl. securidens, *Say?*) Pl. chalybæus; elytris violascentibus, mandibulis capitê parùm longioribus, versus basin curvatis, dente supero alteroque interno versus apicem armatis, pronoti lateribus marginatis. Long. corp. lin. 6.—Hab. Oregon. Mus. Guérin.

May 6th, 1844.—G. Newport, Esq., President, in the Chair.

Mr. J. F. Stephens exhibited a specimen of Yponomeuta sedilla, *Duponch.*, a moth new to this country, which he had captured on the 25th of April at Norwood.

[cvii.] Mr. W. W. Saunders exhibited the larva of a Longicorn beetle which was found in casks of gum imported from South America, to which it had proved injurious.

Mr. S. Stevens exhibited specimens of Lytæa leucographa, taken in blossoms of sallow at Leith Hill in April. Also specimens of Dendrophilus Cooperi, taken in numbers in a decayed apple-tree at Hammersmith.

Mr. Ingpen exhibited a specimen of Pœcilus cupreus, taken in a pea-field, carrying a piece of a pea in its mouth.

The following memoirs were read :—

"Description of the habits of Plectropteron Dianæ (B. Selene), a large Indian moth." By Captain Hutton.

In this communication the author gives a careful detail of his observations upon a brood of this splendid moth, a female of which had deposited 246 eggs whilst in his possession, the caterpillars of which are hatched in 18 days. The changes which the insect undergoes in this state are described ; the food consisting of a tree called by the native Indians "Munsooree." The peculiar mode in which the insect makes its escape from its cocoon is remarkable: a sharp scraping noise is first heard issuing from the cocoon, produced by a sharp instrument (which the author considered to be the edge of the patagium), drawn across the threads for the purpose of cutting a hole, the black point of which is occasionally thrust through the cocoon, the cutting proceeding in two directions, so as to form a cross, through which a passage is effected by the inclosed and newly-hatched moth.

"Descriptions of the eggs and young larvæ of Sialis lutarius." By W. F. Evans, Esq., by whom living specimens were exhibited.

The eggs of this insect are observed upon the rushes in the margins of ponds, in patches from two to three inches long, encircling the rush near the top ; 100 eggs were counted in a square line, so that each patch contains between 2000 and 3000 eggs, which are of a singular form, and arranged in a slanting direction. The larvæ are hatched at the beginning of May: they tumble about with their bodies erect like the Staphylinidæ, and swim with great activity, wriggling their bodies about, and at the same time using their long legs. Their heads are of a large size.

"Notes on the habits of Osmia Tunensis and bicolor, which occasionally construct their cells in the shells of snails." By F. Smith, Esq., by whom specimens of the nests and insects were exhibited.

June 3rd, 1844.—G. Newport, Esq., President, in the Chair.

Mr. Thrupp exhibited some pieces of lime-trees infested by a species of Coccus from the neighbourhood of London.

The President exhibited some specimens of a species of the same genus which attacks the orange-trees in the Azores, which led to an extended discussion, and to the [cviii.] appointment of a committee to investigate the nature of its attacks, and also to suggest the means of preventing the injurious effects of this insect.

The following memoirs were read :—

"Notes on the habits of Odynerus Antilope." By F. Smith, Esq.

On the 10th of August, 1843, the author observed several females of this insect burrowing into a sand-bank. At the termination of one of the burrows he found a circular chamber about half an inch in diameter, filled with small green caterpillars, the larva of the wasp not being then visible; but on removing the contents of the chamber into a pill-box, it was discovered two days afterwards, being about one line long: it fed voraciously, increased in size rapidly, and on the fourteenth day had consumed the whole of its store of food except three of the caterpillars, which had been previously attacked by Ichneumons, the larvæ of which parasites had spun their cocoons before the Odynerus-larva was full-fed. The latter, after remaining quiescent for two more days, then spun a globular silken cocoon, within which it remained unchanged till the first week in the following April, when it cast off a thin skin and assumed the pupa state, the larva skin remaining attached to the anal segment. At the end of the third week it began to acquire some tint of its natural or perfect colouring, the head becoming dark-coloured, as well as the tips of the wings and femora; day by day it progressed in its gradual approach to a perfect state, and on the 26th of May it became active, but it was two or three days before it finally took wing. The sex of the insect developed was male. Mr. Smith made a sketch of the larva in January; it had thirteen segments and an anal tubercle, including the head; some hymenopterous larvæ have apparently fourteen, as in Epipone lævipes, but he believes the correct number to be ten, having lateral spiracles; the head and following segment destitute of a spiracle, as well as the anal segment, which makes up the true number thirteen, including the head. The larva of Osmia leucomelana would, if the constrictions were numbered, have fifteen segments, including the head: it is very deeply constricted; and without taking the spiracles as a guide, the number of segments would be puzzling to enumerate.

The larva of Osmia leucomelana after spinning its cocoon remains in a state of lethargy until the beginning of March, when it assumes the pupa state, and is afterwards about six weeks arriving at its perfect condition. The pupa-case spun by the larva of this species of Osmia closely resembles that spun by some species of fossorial Hymenoptera of the genus Crabro.

" Descriptions of some new species of Halticidæ from the Philippine Islands." By G. R. Waterhouse, Esq.

July 1st, 1844.—G. Newport, Esq., President, in the Chair.

Captain Parry exhibited an interesting collection of insects received by him from [cix.] New Zealand. Also a specimen of Sirex gigas, recently captured by himself at Sunning Hill.

The President exhibited specimens of Saropoda furcata, and its parasite Cœlioxys conica, reared by himself from the nests made in posts at Canterbury.

Mr. Westwood exhibited some drawings made by Dr. Templeton of various apterous insects of Ceylon, accompanying his memoir on those insects printed in that island.

Mr. Yarrell presented a leaf of the lime-tree, thickly covered with small conical fleshy protuberances, apparently the result of the puncture of insects.

The Rev. F. W. Hope exhibited some specimens and drawings of fossil insects from Aix. He also exhibited specimens of both sexes of Goliathus Savagei, recently received by him from Western Africa from Mr. Savage.

The following memoirs were read:—

" Descriptions of new species of Buprestidæ from New Holland," chiefly collected by C. D. E. Fortnum, Esq. By the Rev. F. W. Hope.

Sp. 1. Chrysodema gigas, *Hope*. Viridis, thorace ferè quadrato rugoso-punctato, elytris quadricostatis, marginibusque externis elevatis, tarsisque infra flavis. Long. lin. 19, lat. lin. 6½.—From Swan River.

Sp. 2. Stigmodera signaticollis, *Hope*. Flava, thorace viridi-violaceo, utrinque

flavo-maculato, elytris tribus fasciis violaceis, pedibus viridibus. Long. lin. 14, lat. lin. 6.—From Swan River.

Sp. 3. Stigmodera Mitchellii, *Hope.* Flava, thorace olivaceo-æneo, marginibus croceis, fossulâ utrinque parùm distinctâ, elytrisque violaceis et quatuor fasciis flavis ornatis, corpore infra cyaneo, pedibusque concoloribus. Long. lin. 11½, lat. lin. 5.—From Swan River.

Sp. 4. Stigmodera sanguinosa, *Hope.* Ænea, thorace nigricante, elytris sanguineis punctis viridibus fortiter excavatis, corpore infra aurato-æneis griseisque pilis obsito, pedibus antennisque cupreis. Long. lin. 10, lat. lin. 4.—From Swan River.

Sp. 5. Stigmodera hæmatica, *Hope.* Sanguinea, capite atro-æneo, thorace in medio nigro-maculato, corpore infra sanguinoso, pectore pedibusque cyaneis. Long. lin. 15, lat. lin. 6.—From Swan River.

Sp. 6. Stigmodera Parryi. Brunneo-rubra, thorace æneo rubroque colore variegato, elytris brunneo-rubris, corpore infra eroso-punctato et æneo, pedibusque concoloribus. Long. lin. 14½, lat. lin. 6.—From New Holland.

Sp. 7. Stigmodera cyanura, *Hope.* Flava, thorace viridi nitido, maculâ flavâ parvâ utrinque positâ, elytris flavis, apicibusque latè cyaneis, corpore infra flavo viridique colore variegato. Long. lin. 11, lat. lin. 4½.—From Swan River.

Sp. 8. Stigmodera Hoffmanseggii, *Hope.* Violacea, thorace æneo, elytris pur-
[cx.] purascentibus striatis, apice subserratis, humeris flavo-maculatis fasciisque
duabus concoloribus ornatis, corpore infra chalybeo-violaceo, pedibusque æneis.
Long. lin. 9, lat. lin. 4.—From the neighbourhood of Swan River.

Sp. 9. Stigmodera perplexa, *Hope.* Ænea, thorace nigricante, elytris flavis tribus fasciis atro-violaceis signatis, corpore infra atro-æneo, pedibus concoloribus. Long. lin. 7, lat. lin. 3.—From Western Australia.

Sp. 10. Stigmodera assimilis, *Hope.* Violacea, thorace olivaceo-æneo, elytris tribus fasciis flavis, corpore infra purpurascente, pedibus concoloribus. Long. lin. 5½, lat. lin. 2.—From Port Philip.

Sp. 11. Stigmodera Adelaidæ, *Hope.* Purpurascens, thorace flavo-marginato, disco viridi crebrissimè punctulato, elytris violaceis et decem-maculatis, corpore infra flavo, pedibus violaceis. Long. lin. 5, lat. lin. 2.—From the settlement at Adelaide.

Sp. 12. Stigmodera purpurea, *Hope.* Purpurea, thorace lateribus flavo-marginatis, elytrisque violaceis et octo maculis notatis, corpore infra flavo et violaceo. Long. lin. 4, lat. lin. 1½—Received by Mr. Gould from Western Australia.

Sp. 13. Stigmodera hilaris, *Hope.* Æruginosa, elytris miniatis, humeris viridibus maculisque aliis concoloribus per discum positis, corpore infra læte virescente. Long. lin. 3, lat. lin. 1.—From Port Philip.

Sp. 14. Stigmodera Saundersii, *Hope.* Atra, elytris miniatis ad basin 4-maculatis, maculâ mediâ rotundatâ nigrâ apicibusque nigris. Long. lin. 5, lat. lin. 2. —Lately sent by Mr. Fortnum from the Adelaide settlement.

Sp. 15. Buprestis albivittis, *Hope.* Ænea, thorace punctulato lateribus externis albis, elytrisque æneis, vittâ albidâ laterali notatis. Long. lin. 12½, lat. lin. 4.—Inhabits Van Diemen's Land.

Sp. 16. Buprestis pyritosa, *Hope.* Igneo-cuprea, thorace flammanti punctato, elytris subviolaceis maculis fasciisque duabus aureis notatis, pedibusque viridibus. Long. lin. 5, lat. lin. 2.—From Western Australia.

Sp. 17. Buprestis verna, *Hope*. Viridis, capite cupreo-æneo, thorace elytrisque aurato-virescentibus et punctatis, corpore subtùs rosco-cupreo et pubescenti, pedibusque concoloribus. Long. lin. 4½, lat. lin. 1½.—Sent by Mr. Fortnum from Adelaide.

Sp. 18. Buprestis Porteri, *Hope*. Cuprea, capite obscurè æneo, scutello aureo, corpore subtùs aurato-æneo et pubescenti. Long. lin. 3, lat. lin. 1.—From the vicinity of Port Philip.

Sp. 19. Buprestis Helenæ, *Hope*. Nigro-ænea, thorace concolore, maculis quatuor irregularibus elytrorum, corpore subtùs æneo, pedibus concoloribus. Long. lin. 6½, lat. lin. 3.—From Swan River.

[cxi.] Sp. 20. Buprestis lanuginosa, *Hope*. Affinis præcedenti: nigro-violacea, thorace cupreo, elytris maculis tribus aurantiacis marginibus apicibusque sanguineis, corpore subtùs æneo lanugine albidâ obsito. Long. lin. 6½, lat. lin. 3. —Received from Captain Roe, of the Swan River settlement.

Sp. 21. Chrysobothris Australasiæ, *Hope*. Nigro-ænea, thorace pallidiori colore æneo, elytris nigricantibus, punctis duobus baseos fortiter impressis et alteris in medio cupreo-auratis, corpore subtùs æneo, lateribus sublanuginosis. Long. lin. 6, lat. lin. 2½.—From Swan River.

Sp. 22. Anthaxia Fortnumi, *Hope*. Cyanea, thorace concolori, lateribus aurato-punctatis, elytris ad scutellum aurato-fulgentibus maculâ irregulari aureâ post humeros locatâ, corpore subtùs violaceo, pedibus concoloribus. Long. lin. 3, lat. lin. 1.—This is, I believe, the first notice of a true Anthaxia being found in New Holland.

Sp. 23. Anthaxia Adelaidæ, *Hope*. Nigro-ænea, thorace cupreo-æneo subtilissimè punctato, elytris nigricantibus violaceoque colore tinctis, corpus infra atro-æneum, antennis pedibusque concoloribus. Long. lin. 1¼, lat. lin. ½.—Inhabits Adelaide.

Sp. 24. Acmæodera nodosa, *Hope*. Nigra, thorace nodoso et tuberculato, elytris flavis maculis minutis variis variegatis, corpore infra atro-nitido, pedibusque concoloribus. Long. lin. 4, lat. lin. 1½.—Received from Captain Roe of Swan River.

Sp. 25. Acmæodera melanosticta, *Hope*. Atra, thorace nigro-nodoso, elytris flavis maculis variis atris variegatis, corpore infra concolori. Long. lin. 2½, lat. lin. ½.—From Swan River.

Sp. 26. Agrilus purpuratus, *Hope*. Purpureus, thorace concolori, lateribus angulis anticis luteis, elytris purpurascentibus, corpore infra albidis maculis notato. Long. lin. 4, lat. lin. 1.—From Moriatta, captured by Mr. Fortnum.

Sp. 27. Agrilus assimilis, *Hope*. Purpureus, capite æneo punctulato flavisque capillis ornato, thorace ad angulos anticos aureo-maculato, elytrisque purpurascentibus, corpore infra æneo, lateribus annulorum abdominis subpilosis. Long. lin. 4, lat. lin. 1.—From Western Australia.

Sp. 28. Agrilus auro-vittatus, *Hope*. Affinis *Agrilo purpurato*, Hope, at minor. Purpurascens, capite aurato punctato, thorace lineâ longitudinali mediâ aureâ, binisque aliis ad latera positis, elytris cupreo-purpureis vittâ suturali auratâ in singulo conspicuâ, corpore infra æneo, pedibus concoloribus. Long. lin. 2¾, lat. lin. ¾.—Received from Moriatta.

Sp. 29. Agrilus pistacinus, *Hope*. Totum corpus supra et infra viride punctatum, antennis saturatiore colore inquinatis, caput ferè rotundatum, thorace

angulis posticis rectè acutis, elytra ænea crebrissimè punctulata, corpus infra
[cxii.] viride sericie albidâ obsitum, pedibus concoloribus. Long. lin. 2, lat. lin. ½.—
From the Adelaide settlement.

Sp. 30. Cisseis 14-notata, *Hope*. Affinis *C. stigmatæ*, Laporte. Atro-violacea, thorace concolori, lateribus roseo-cupreis, elytrisque obscuris 14 punctis flavis notatis. Long. lin. 3½, lat. lin. 1¼.—From Swan River.

Sp. 31. Cisseis spilota, *MacLeay MSS.* Viridi-ænea, thorace quatuor punctis albis notato, elytrisque variis minutis maculis ornatis, corpore infra æneo. Long. lin. 5½, lat. lin. 1¾.—From New Holland.

Sp. 32. Ethon signaticolle, *Hope*. Affine *E. bicolori*, Laporte, at longius. Violaceum, thorace aureo nitido binis albidis punctis notato, elytris violascentibus punctis variis albis per discum aspersis. Long. lin. 4½, lat. lin. 1½.—From the vicinity of Port Essington.

Sp. 33. Ethon roseo-cupreum, *Hope*. Totum corpus supra cupreum et punctatum, capite foveolato, elytris læte cupreis et iridescentibus, corpus infra æneum, lateribus abdominis albido colore irroratis, pedibus concoloribus. Long. lin. 3, lat. lin. 1¼. From Moriatta.

Sp. 34. Ethon cupricolle, *Hope*. Nigro-æneum, thorace cupreo-aurato binisque minutis foveis albis notato, lateribus concoloribus, elytris atris et punctis duodecim albidis notatis, corpore infra viridi et nitido, segmentis abdominis utrinque albo-punctatis, pedibusque viridibus. Long. lin. 2½, lat. lin. 1.—From Moriatta.

Sp. 35. Ethon æneicolle, *Hope*. Ænescens, thorace viridi-æneo foveis dorsalibus albidis binis impresso, lateribus concoloribus, elytris nigricantibus albo-punctatis et subtomentosis, corpore infra viridi, segmentis abdominis utrinque albo-punctatis, pedibusque viridi-æneis. Long. lin. 2¾, lat. lin. 1.—From Adelaide.

Sp. 36. Ethon Gouldii, *Hope*. Æneum, thorace cupreo-æneo fortissimè punctato, lateribus externè lineâ elevatâ æneâ conspicuis, elytris iridescentibus æneis, colore violaceo sparsim aspersis, maculis duabus obscuris post scutellum positis, corpus infra æneum punctatum, pedibus concoloribus. Long. lin. 4, lat. lin. 1¼. From Port Essington.

Sp. 37. Stigmodera Stricklandi, *Hope*. Flava, thorace olivaceo-æneo marginibus croceis, elytris atro-violaceis, parte dimidiatâ anteriori flavâ, maculâ violaceâ in singulo ad latera positâ, fasciâque flavâ ante apicem binisque punctis rubro-miniatis in angulo apicis locatis, corpore infra viridi, ultimis abdominis segmentis croceo colore inquinatis. Long. lin. 10, lat. lin. 4½.—From Moriatta.

"Descriptions of some new exotic Reduviidæ." By J. O. Westwood, F.L.S.

Ploiaria bispinosa, *Westw.* Albida, prothorace in medio valdè constricto, posticè
dilatato et bituberculato; scutello spinis duabus brevibus acutis erectis; hemely-
tris pone medium intus dilatatis irregulariter fusco-guttulatis, venis albis; seg-
[cxiii.] mentis abdominis lateribus angulato-productis; pedibus fusco multo annulatis
et pilosis. Long. corp. hemelytris clausis, lin. 5½.—Hab. Nova Hollandia.
Adelaide, D. Fortnum. Mus. Hope.

Ploiaria Madagascariensis, *Westw.* Præcedenti valdè affinis et forsan varietas geographica; pronoto constrictione longiori in medio, hemelytrisque maculis

majoribus et magis distinctis, fuscis. Long. corp. ferè lin. 6.—Hab. Madagascar. Mus. Jardin des Plantes, Paris.

Extracts from a letter from Dr. Templeton, addressed to Mr. Westwood, containing notices of the habits of the Scolopendriæ and other apterous insects of Ceylon.

Dr. Templeton states that he had been twice bitten by large specimens of Scolopendra pallipes, and had seen persons bitten by S. crassa; but observes, that if there be poison, it is rather singular in its kind, as there is little or no pain at the time, certainly not more than is due to the mere mechanical violence; and if the bite had been in the thigh, calf of the leg, or other fleshy part, the after-consequences would be trifling; but if in the finger, or where much tendinous structure abounds, about twelve hours after the part inflames, and it is very likely to whitlow; but the application of a poultice relieves it, so that he had never known any pain or signs of inflammation the following day. It is however very probable that persons of cachectic habit might suffer more severely, in fact die of it; but it does not follow on that account that the wound is poisoned. He suspects indeed it is a mere story, like that of the Tarantula. He has obtained some very curious spiders, and which he thinks must be separated from genera as yet published.

The letter was accompanied by a list privately printed by Dr. Templeton, containing descriptions of the species of Thysanura, Myriapoda, Scorpionidæ, Cheliferidæ and Phrynidæ, which the author had discovered in Ceylon, with the following notes on the habits of Phrynus lunatus, *Pallas*:—

"Very common in chinks in old walls of dwelling-houses and dark outhouses. The usual movements of this curious animal are slow and prowling, and indifferently in all directions like a crab; if it be however disturbed it runs with amazing velocity, vastly quicker than the cockroaches, upon the young of which it usually preys; it seizes them by the head and legs with the claws of the pedipalpi with a sudden snap, and thrusts its head into the soft parts beneath the anal plate so as to suck the juices, the maxillary palpi being pressed alternately on the dorsal surface with a clawing movement, in its attemps to force it's mandibles more deeply in: it however sometimes devours the coriaceous parts of the insect, as I found by placing one with it in a tumbler; during the night the femora and all the juicy parts of its prey had disappeared. I have never found cast-off skins. When irritated with the handle of a brush, the snapping blow it makes with the pedipalpi is singularly violent and startling."

In reference to which Mr. Hope stated, that Signor Costa had informed him that [cxiv.] the bite of the Scolopendra, in the island of Ischia, was to a certain extent venomous, the pain lasting for seven or eight days, and being considerable; ammonia was the usual remedy. Captain Parry also stated that the same effects were produced by the bite of the Scolopendra in Portugal.

Mr. Westwood mentioned that he had recently observed the excessive fondness of wasps for honey-dew upon whitethorns in the spring; and that it was thence advisable to watch situations in which Aphides abounded at that time, in order to destroy the queen wasps attracted to such spots. He also stated that he had noticed an oak-tree in Staffordshire far more backward in its foliage than the neighbouring trees, but which was entirely covered with galls, the latter being produced by the Cynipidæ which had particularly selected this tree from its ill state of health, as proved by its backward foliage.

August 5th, 1844.—G. Newport, Esq., President, in the Chair.

Mr. Evans exhibited a lanthorn adapted with lenses, nearly similar to a magic lanthorn, which he had found of great service in delineating the veins of the wings of Neuropterous insects, the figures being received upon tracing-paper gummed upon a square of glass, and held at any distance from the machine according to the size required.

Mr. F. Bond exhibited a specimen of Deilephila Galii taken at Harrow in July; also specimens of Polyommatus Arion taken at Barnewall Wold in Northamptonshire during the latter half of July.

Mr. S. Stevens exhibited a box of Lepidoptera recently taken in Black Park near Buckingham, containing the following rare insects:—Limenitis Camilla, Psilura monacha, Mythimna turca, Polia herbida and bimaculosa, Graphiphora brunnea, festiva, rhomboidea (tristigma) and triangulum, Hadena saponaria and oblonga, Rusina ferruginea, Thyatira derasa and Batis, Alcis roboraria, conversaria and sericearia, Lithosia helvola ♂ and quadra, Fumea nitida, Cledeobia albistrigalis, &c.

Mr. Westwood exhibited a specimen of Serropalpus striatus, a beetle not hitherto noticed as British, which he had received from Mr. Plant of Leicester, by whom it had been recently obtained in that neighbourhood.

The following memoirs were read:

"Notice of the occurrence of a species of Sirex in a wooden building long erected," communicated by Sir W. Clinton and the Bishop of Norwich to Mr. Spence.

The wood-work of a conservatory belonging to Sir W. Clinton, which had been erected ten years, having been observed to be undergoing what appeared to be the dry-rot, it was partially taken down, and in the interior of one of the rafters of close-grained Memel deal, several pupæ of an insect, supposed to be a foreign species of Sirex, were discovered within burrows filled with wood-dust, and in the parts where the pupæ were observed, lined with the fragments of wings and other parts of the perfect insect; and as no external orifice was detected, it is supposed that the insect [cxv.] proceeded from eggs laid in the rough timber before it was framed, and that there had been a succession of them. The insect was not however forwarded for inspection, so that doubts must be entertained both as to its species and even family, as the account seems in some respects to agree with the habits of some of the wood-boring species of the Linnæan genus Sphex.

"Notices sur quelques Zoologistes Néapolitains morts." By Signor Costa of Naples. Communicated with a translation by the Rev. F. W. Hope, F.R.S., &c.

"Observations on the Fossil Insects of Aix in Provence, with descriptions of three species." By the Rev. F. W. Hope, F.R.S., &c.

In this paper the author gives a list of 113 genera of insects found in the Aix formation, with observations derived from a consideration of their habits whilst living as connected with their deposit; and describes three new species, namely, Balaninus Barthelemyi, Rhynchænus Solieri and Corizus Boyeri.

"Descriptions of two new exotic Hemiptera in the cabinet of the British Museum." By Mr. Westwood.

Eumenotes, *Westw.* (gen. nov. Amauro *Burm.* affine). Corpus oblongum, capite lato anticè cornubus duobus planis truncatis; antennis satis crassis 4-articulatis articulo 2do reliquis longiori, 4to ovali parvo; prothorace anticè lateribus parallelis membranaque hemelytrorum valdè areolata.

EUMENOTES OBSCURA, *Westw.* Obscurè brunnea punctata, apice scutelli rufescenti; membrana apicali hemelytrorum nigricanti, pronoti margine postico transverso deflexo; abdominis lateribus subserratis. Long. corp. lin. 4.—In Mus. Britann.

PHYSODERES, *Westw.* (gen. nov. ENICOCEPHALO *W.* affine). Caput sub-bipartitum; antennis gracilibus 4-articulatis, articulo 2do longiori, 4to præcedenti vix tenuiori; prothorax latissimus lateribus inflato-rotundatis pone medium constrictus, hemelytrorum corio parvo, membrana maxima area magna media.

PHYSODERES NOTATA, *Westw.* Obscurè brunneo-fulvescens, pronoto in medio partis anticæ lineis duabus latis parallelis notisque tribus lateralibus obscuris, abdominis lateribus nigro flavoque variis. Long. corp. lin. 4½.—In Mus. Britann.

Extract of a letter addressed by Colonel Hearsey to Mr. Westwood, containing a notice of the habits of Galeodes and Scorpio, and on the specific identity of Papilio Pammon and Polytes, which he had observed *in coitu.*

The Galeodes vorax of Hutton was observed running about the floors of the Bungalows at Nusseerabad, as large as small mice, several of which he had kept alive in glass bottles. On giving a large Sphex to one, the Galeodes seized it, and though stung, soon devoured it, without appearing injured by the sting. He also describes a [cxvi.] battle which occurred between one of these insects and a good-sized scorpion: the Galeodes was stung several times, but was disabled by the scorpion either nipping or biting off a small piece at the very end of one of the two long thread-like feelers, the extremity of which has a process for climbing by excluding air; for by hanging by the end of these leg-feelers they can, but not easily, climb up the side of a glass tumbler. On putting another Galeodes to the scorpion the former seized it, and was actually thrown, more than once, violently to the sides of the glass from the strong muscular action of the tail, and the sting fairly entered its body. The Galeodes returned to the charge, and at last seized the tail of the scorpion near the sting, the latter endeavouring, but in vain, to seize the limbs of the former: as the Galeodes could not however bite through the hard substance of the tail, it gradually went down it with its jaws to its junction with the body, when it buried two of its fangs into the body of the scorpion, holding fast by the other two, and alternately gnawing and holding by these fangs. By this means it cut off the scorpion's tail from the body, and then gradually ate it—tail, sting and all.

In reference to this communication the President stated, that the species of Galeodes in question, which had been named G. vorax, was the G. fatalis, *Hbst*; and Mr. Doubleday mentioned, that in the genus Diadema (Papilio Bolina, &c.), the females of some of the species occasionally exhibited the colours of the male.

October 7th, 1844.—G. NEWPORT, Esq., President, in the Chair.

Mr. Bedell exhibited specimens of Tortrix rutilana, *Hb.* (a species new to Britain), taken at Sanstead Down near Croydon, on juniper bushes.

Mr. Wollaston exhibited numerous specimens of the rare Cossonus Tardii, taken in decayed beach and sycamore trees in Lord Mount-Edgcumbe's park, Cornwall.

Mr. Raddon exhibited a number of caterpillars of a species of Agrotis, which had proved very destructive to the potatoe crop in Devonshire, eating through the young shoots just beneath the surface.

Mr. Edward Doubleday exhibited a box of Chilian Coleoptera, some of which were new, and of interesting forms.

The President exhibited a number of specimens of Vanessa Io, which he had subjected in the larva state to a series of experiments, with the view of determining the question as to the power of reproduction of the limbs in those orders of insects which undergo a complete metamorphosis, and which had fully determined the existence of such a power, the entire legs, including the whole of the coxa and the different parts of the legs, being reproduced; in some cases the limb reproduced was small and comparatively imperfect: but in all the ungues were reproduced, although the tibial spines were generally absent, as he had also observed to be the case in the Lithobiidæ. He had also determined that the reproductive process took place in the [cxvii.] antennæ of the Iulidæ when cut off in the middle. Many of the caterpillars had however died from excessive hæmorrhage, and he had found that the best period for prosecuting the experiment was, preceding the last stage of the insect's existence as a caterpillar, two or three days before or after the moulting takes place: in moist weather the number of caterpillars which died was far greater than in fine weather, the blood coagulating slowly. [See the details of these experiments published by Mr. G. Newport, in a subsequent part of the Philosophical Transactions of the Royal Society of London.]

Mr. H. Goodsir gave an account of his experiments and observations on the reproductive powers of the Crustacea (which he had communicated to the preceding Meeting of the British Association). He had found the reproductive power greater in this class than in insects; but he had observed that the antennæ in the Crustacea are not capable of reproduction. He exhibited an extensive series of drawings illustrating the process of reproduction. He had observed, that when the leg is injured in any part, the crab throws it off at a spot in the coxa distinguished by a slender annulus, the extreme base of the coxa not being capable of reproduction. In the lower Crustacea, however, he had observed that reproduction takes place from any part of the legs, and not merely at the middle of the coxa, as in the Brachyura. He had detected a system of oil-vessels within the shell circulating over the surface of the limb, perfectly analogous to the system of vessels in the ova for the supply of nourishment to the young; and he had no doubt that this system in the limbs had for its object the reproductive process. In Cancer Pagurus the embryo claw was found coiled upon itself within its sac during the process of reproduction, but in the lobster it was not thus coiled up.

Extracts from letters were read from Colonel Hearsey and Capt. Boys, addressed to Mr. Westwood, containing various observations on the habits of Indian insects.

In the former communication Colonel Hearsey mentions the capture of specimens of different species of Paussidæ by Mr. Benson and Dr. Bacon, also a pair of a new species of Œstrus *in copulâ,* and a new Hister with white spots on the elytra, and other Necrophaga, taken out of the dead body of a Cobra di Capello which had destroyed a quantity of Mrs. Hearsey's poultry.

In the other communication Captain Boys describes the habits of a species of Orthoptera belonging to Latreille's genus Tetrix, about an inch long, which readily takes to the water and dives under it, remaining at the bottom attached to a stone for many minutes together, the dilated foliaceous appendages of the hind legs being well-adapted for swimming,—being the first instance recorded of a natatorial Orthopterous insect. He also mentions as remarkable, that he had never taken a Lucanus either in the plains of India or in the Vindyah range of hills, although they are not uncommon in the Himalayan range, where he always found them feeding on the Fungi of various trees, and he had been informed that a friend had even noticed them feeding [cxviii.] upon excrementitious matter. He had never taken Meloë except at an elevation of 11,000 feet above the level of the sea in the Himalayahs. At an elevation of 14,000 feet he took a Tenthredo; they were common at 10,000 feet, where the diurnal Lepidoptera were scarce, and he had not there met with a single true Papilio: several species of Vanessa were more common, and at 13,600 feet he took two specimens of a species allied to Doritis Apollo. He had also taken two or three very fine Bolboceri, and a Megacephala nearly allied to, if not identical with, M. Euphratica.

Extracts were also read from a letter addressed by Dr. Cantor to the Rev. F. W. Hope, on the insects of Prince of Wales Island; in which the writer gives the following extract from his note-book respecting a species of the singular genus Trochoides (of which he also inclosed a highly magnified figure):—

"Nov. 7, 1842. Trochoideus Amphora*, *mihi*. The night was very dark, and numerous minute insects were attracted by the flame of the lamp, this among the rest. It is the first and the only one of the Paussidæ I ever observed here. Those few which I have seen up in Bengal were captured precisely under similar circumstances. T. Amphora appears to be closely allied to T. Desjardinsii, *Guérin* (Trans. Ent. Soc. ii. 97), inhabiting Mauritius."

The Rhinoceros-beetles (Oryctes) are very destructive to cocoa-nut plantations, as they devour the flowers and leaves; and coolies are regularly employed to clear the trees thus infested: yet he never saw more than twenty-five to thirty at the time destroyed in a single tree. The presence of the beetle is indicated by the appearance of the gigantic leaves, which have the edges regularly indented. Koombang is the Malayan name for a beetle, but the Malays denominate this species Koombang κατ' ἐξοχήν. He had particularly attended to the araneideous genus Attus, several of the species of which are of the most exquisite colours, and had drawn them from the life, the metallic colours generally fading, after the insect is plunged into spirits, into a dull black. He had also made some notes on their habits which he proposed to publish. Of the genus Myrmarachne he had observed four or five species. He also inquires, "Is it known that many of the Arachnida are covered with scales similar to those of the Lepidoptera? I can find it nowhere recorded, and I never knew so till I examined mine under the microscope, since which discovery I have always added a magnified *scale* to my sketches."

November 4th, 1844.—G. Newport, Esq., President, in the Chair.

Mr. Weaver exhibited an extensive collection of Lepidoptera captured during a recent visit to Scotland, including various new species of Tortricidæ, Tineidæ, &c., and also a fine series of specimens of Hipparchia Melampus of Fuesslin (a species new to this country), taken in July on marshy ground amongst the mountains near [cxix.] Kinloch Rannock in Perthshire, and which he stated are only to be found on the wing during the sunshine, dropping into the grass on the sun being obscured.

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* T. Amphora. Piceus nitidus, punctatissimus, punctis minutis, tenue setosus, prothorace lateribus marginatis et in medio angulatis, antennis, clypeo, oris partibus et pedibus piceo-testaceis. Long. corp. lin. $1\frac{3}{5}$.

Mr. Evans exhibited various insects from New Holland and North America.

Mr. E. Doubleday exhibited specimens of a new American species of Saturnia allied to S. Promethea, having the sexes alike. Also a beautiful moth belonging to the genus Lophocampa, several specimens of which had been captured alive in the London Docks, supposed to have been imported in cargoes of mahogany from Honduras.

Mr. F. Bond presented some oak-leaves, each covered with two distinct species of oak-spangles, or minute galls.

Mr. Westwood exhibited various Indian insects from Captain Hutton, including his Plectropteron Dianæ, which proved to be Saturnia Selene; and the instruments described by that gentleman as the means by which the insect cuts its way out of its cocoon, were thereby ascertained to be the patagia or tippets. Also a new species of moth closely allied to the Bombyx Mori, which Captain Hutton had discovered on mulberries in India, and of the transformations of which an account was read from a letter addressed by him to Mr. Westwood, in which he also mentioned having discovered another Indian silk-moth closely allied to the Tusseh silk-moth.

Drawings of two Indian species of locusts, made in that country by Lieutenant Edwards, M.E.S., were exhibited, and a memoir read by the Rev. F. W. Hope on the Asiatic species of that family, and by whom a large collection of nearly allied species from various localities was exhibited.

The species which for two successive years had ravaged India from one end to the other is regarded by Mr. Hope as undescribed, and of which he gives the following character:—

> ŒDIPODA EDWARDSII, *Hope*. Fusca, capite thorace pectore pedibusque rubescentibus, elytris dilutè fuscis, brunneo-maculatis, dentibus rubris.—Long. corp. unc. 2, lin. 4. Long. tegm. singuli, unc. 2, lin. 6.

A paper by Mr. Westwood, containing the description of a new genus of exotic Cimicidæ, was read.

> STENOTOMA, *Westw.* Genus novum inter *Coreidas* locandum. Caput lobo antico porrecto bispinoso; lateribus ante oculos bispinosis. Ocelli 2. Antennæ articulo 2ndo clavato, 3tio ovali lato, 4to ovali oblongo, præcedenti minori. Prothorax lateribus acutè spinosis.

> STENOTOMA DESJARDINSII, *W.* Lutea, fulvo parum variegata undique fusco punctata; antennis fuscis, abdominis lateribus fusco et albido alternatim maculatis. Long. corp. lin. 3.—Hab. in Insulâ Mauritii. D. Desjardins. Mus. nostr.

[cxx.] December 2nd, 1844.—G. NEWPORT, Esq., President, in the Chair.

Mr. Desvignes exhibited a specimen of Coccinella lineata, *Fab.*, now ascertained to be an extremely rare variety of C. ocellata.

Mr. Pelerin exhibited specimens of the New-Zealand caterpillar and its parasitic Clavaria, already figured and described in the Transactions of the Society.

Mr. Milton exhibited numerous specimens of Dipterous larvæ, evidently those of a moderate-sized Tipula, 852 individuals of which he had extracted, mostly alive, from the crop of a pheasant recently killed.

Mr. Evans exhibited a numerous collection of New Holland insects, several being of new and interesting species.

Mr. Westwood exhibited the case formed by the larva of Porrectaria vibicipennella (a species new to this country, discovered by Mr. Weaver in Worcestershire during the past season), and which he had received from the Senator Van Heyden, of Frankfort. Mr. Marshall stated that he had also obtained the cases of this species from Mr. Weaver, by whom the insect had been reared from the caterpillar state.

Mr. Westwood also exhibited a new genus of Carabidæ from Guinea, allied to the genus Morio, received from M. Westermann: also drawings of an allied new genus from Ceylon, in the collection of Mr. Melly, and of various other new genera of Coleoptera.

Mr. F. Bond exhibited a specimen of the caterpillar of Bombyx potatoria, entirely covered with a white fungus very similar to muscardine.

Mr. W. W. Saunders exhibited a dragon-fly which had been captured flying over the Atlantic 600 miles from land, by Mr. Stephenson.

A memoir by Mr. Stevenson on the Entomological peculiarities of New Zealand was read. After commenting upon the peculiarities of the climate and the vegetation of New Zealand, the author remarks, that the opinion that there are but few insects in New Zealand is erroneous; the great masses of vegetation requiring vast numbers of insects to keep them in check, and hasten their decay when dead by boring into the timber more or less superficially; the Tetramera in fact form three-fourths of the Coleoptera. Only two Cicindelæ were observed, and but few Carabidæ and Brachelytra. The Elateridæ were more numerous, but no Buprestidæ were met with. The Clavicornia also are not numerous, and but very few Lucanidæ* and Cetoniæ, no traces of Geotrupidæ, and only two or three Heteromera. Some of the Curculionidæ are of singular forms; some species allied to Brentus burrow in the larva state into the hard wood of trees, and the Longicornes are very abundant; the larvæ of some of the larger species being eaten by the natives either in a raw or half-roasted state. Two Coccinellæ and two Forficulæ only were captured, and only seven or eight species of Hymenoptera, including a species of bee, with large burthens of farina on its hind legs. Five or six species of Libellulæ and three of Cicada were observed, and a large [cxxi.] formidable-looking apterous Gryllus (Deinacrida, *White*), which is very abundant in old trees, secreting itself in crevices of the bark. The small grasshoppers are numerous. In Diptera, the carrion flies perform a more important part in nature, as scavengers, than elsewhere. Tipulidæ and musquitoes abound, but there are decidedly but few Lepidoptera, some of which are very analogous to the English species, such as the Painted Lady and Red Admiral Butterflies.

January 6th, 1845.—G. Newport, Esq., President, in the Chair.

Mr. F. Bond exhibited a specimen of Damophila Trifolii, together with the portable case formed by its larva, thus proving its affinity to the genus Porrectaria.

February 3rd, 1845.—G. Newport, Esq., President, in the Chair.

Mr. A. White exhibited specimens of the Chinese Rhomborhina resplendens from Mr. Harrington's collection, Goliathus (Compsocephalus) Horsfieldianus from Abyssinia, and drawings of some species of Coccinella brought from Asia Minor by Professor Forbes.

Mr. E. Doubleday exhibited a drawing of an aberrant species of Diadema resembling the genus Acræa in its colouring, especially A. Zidora, &c., and which he proposed to name Diadema Boisduvalii.

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* Mitophyllus irroratus, *Parry*, was found under bark.

March 3rd, 1845.—The Rev. F. W. Hope, F.R.S. (who had been elected President at the adjourned Anniversary Meeting), in the Chair.

The President nominated W. Spence, Thomas Marshall and W. W. Saunders, Esqrs., and Captain Parry, to act as Vice-Presidents.

Mr. Ingpen exhibited a remarkably fine specimen of amber, or gum anime, inclosing a small butterfly and numerous other insects.

The following papers were read :—

Extracts from a letter addressed by Captain Boys to Mr. Westwood, containing notices of the habits of the Termites and other insects of India.

On carefully examining the nests of the white ants, the hissing noise described by some author (Smeathman ?) was very distinctly heard by Captain Boys, who ascertained that it was caused by the fluttering of the wings when the Termes is in its perfect state. At the commencement of the rainy season he several times prevented the exit of the perfect insects from their nest, which was in one of his room-walls, by pouring spirits of turpentine down the orifices into the nest, which kept them prisoners for several days; afterwards he plastered up the orifice with mortar, and after a month's confinement he allowed them to swarm, when, however, they all appeared to be of one sex (males), running over the tables in myriads, not a single specimen being observed [cxxii.] to shed its wings, which is an operation voluntarily performed by the females when (as he supposes) they have paired, after which also the male sheds his wings.

Details, accompanied with coloured drawings, were also given of the transformations of a species of Anthrenus, and of several previously described species of Sphinx, Bombyx, and butterflies.

Extracts from a letter addressed to Mr. Westwood by R. Templeton, Esq., on the Bite of the Scolopendra in Ceylon.

Since his previous communication the author had seen two instances which show that the bites of Scolopendræ are not so innocent as he therein stated them to be. Lieut. M——, of strumous habit, was bitten by Scolopendra pallipes of his catalogue, on the forehead just above the root of the nose. He states that the pain was pungent for at least half an hour or longer ; the forehead swelled very much, and his upper eyelids so much as to close the eyes completely. Cold lotion was applied and soon reduced the swelling, the two punctures only remaining. A gunner a few days afterwards was bitten by another of the same species on the dorsum of the foot, and he states that he was awakened by the pain; the Scolopendra was killed in his bed ; two small punctures appeared, his foot near the marks swelled a little, but it disappeared totally in a few hours by poulticing. He states the pain also to have been as if chillie was rubbed into it, but it soon disappeared. His stomach and bowels were much out of order at the time—rather bilious or so.

Mr. Newport, in reference to the poisonous properties of the Scolopendræ, stated that Lithobius was also poisonous, at least to its own tribe, as observed by DeGeer ; and that Scolopendra possesses a distinct secretory apparatus, provided with a poison-gland ending in the mandibles, which are pierced for the purpose of emission of the poisonous fluid, which he had not, however, detected in Lithobius.

"A memoir on the Sectional Characters in the genus Lucanus." By J. O. Westwood, F.L.S.

After alluding to the prevalence of certain characters apparently of *immaterial* importance in the economy of insects, such as the number of joints in the antennæ, the number and position of the veins in the wings, &c., which nevertheless from their constancy afford excellent *artificial* points of distinction, the author alludes to the difficulties he had experienced in adopting sectional characters in the genus Lucanus of modern authors, now consisting of nearly 150 species; and to the employment of the number of spines on the outer edge of the middle and posterior tibiæ in the different sexes, which in many species he had observed to differ in this respect: whence the species form three primary groups:—

1. Those with two or three spines on the outside of the four hind tibiæ.
2. Those with only one spine in the middle of the four posterior tibiæ in both sexes.
3. Those in which the four posterior tibiæ are either destitute of spines, or have them furnished in the middle with one minute spine in the females alone.

[cxxiii.] The commencement of a memoir on the Life and Writings of Fabricius, translated (with additions) from the Danish. By the Rev. F. W. Hope.

Mr. A. White stated that an extended memoir on Fabricius has been published by the Baron Walckenaer in the 'Biographie Universelle.'

It was announced that the Address delivered by Mr. G. Newport at the adjourned Anniversary Meeting had been printed, and was ready for delivery to the Members.

Mr. E. Doubleday, in allusion to the noise made by the genus Termes, as stated in Captain Boys's letter, mentioned that he had recently examined Peridromia Feronia, the butterfly described by Mr. C. Darwin, in his 'Tour,' as making a noise during flight like the rustling of parchment, and that he had detected a small membranous sac at the base of the fore-wings, with a structure along the subcostal nervure like an Archimedean screw or diaphragm in the tracheæ, especially at the dilated base of the wing.

April 7th, 1845.—The Rev. F. W. Hope, F.R.S., President, in the Chair.

Mr. Louis Fraser exhibited, on behalf of Mr. Balfour, a large case of Brazilian insects.

Mr. Westwood exhibited specimens of the singular chrysalis of the genus Simulium, which is found attached to the under side of the leaves of the watercress. Also a box containing a considerable number of specimens (belonging to more than twenty species) of Paussidæ, several of which (being new) had been forwarded to him by Captain Boys. He also exhibited and opened at the Meeting one of the large balls of earth formed by the Indian Copris Molossus, also forwarded by Captain Boys, the interior of which was found to contain a mass of dried dung, partially eaten, and a dead larva.

Mr. A. White exhibited drawings of various remarkable species of Crustacea, and read the description of a new genus of Brachyura somewhat allied in appearance to Plagusia of Latreille.

"The two divisions of Plagusia and Grapsus were formed by Latreille and Lamarck for the reception of certain crabs, to which, from their square carapace and frequently perpendicular sides, Latreille gave the name of Quadrilatères. By De Haan the former of these genera has been divided into two, his Philyra depressa being founded on the Cancer depressus figured by Herbst, while he retains the name of Plagusia for those species of which the Cancer squamosus of Herbst (i. 260. t. 20. f. 113) is the type: of this last group he is acquainted with four species, two of which he describes. Professor Edwards only sectionally divides the genus Plagusia, and describes a new species from the Cape under the name of Pl. tomentosa. A careful perusal and comparison of the description given by Linnæus of his Cancer Chabrus (M. L. U. Reg. 438) has made me consider the Plagusia tomentosa synonymous with the Linnæan species; in which case P. Chabrus must stand in the list for P. tomentosa. Were there any just ground for separating the Plagusiæ depressa and tomentosa, the name [cxxiv.] Philyra, *De Haan*, ought to be changed, because already used for one of the genera of the Leucosiadous family of Crustacea.

"Without referring to the divisions of the marked group called Grapsus, I may here exhibit a sketch of a most remarkably formed genus from one of the Government voyages, somewhat allied to Plagusia, but differing much from it in appearance and even in family.

"TELMESSUS, *White*. Carapace depressed, somewhat pentagonal, the latero-anterior sides being the longest; the latero-posterior sides have two teeth in the middle, the latero-anterior sides have two broad dentated teeth between the external angle of orbit and the strongly developed, wide dentated division, the end of which forms one of the prominent angles of the carapace; the beak is very wide, and is formed of three broad teeth, the lateral forming the internal angle of orbit; the central is the widest, and by three notches at the end is divided into four small teeth; the inner antennæ are small, and not contained within a groove of front; the outer antennæ are very large, two basal joints thick and strong, and project beyond notch of front. The external pedipalps have the 3rd joint pointed at the end; it is oblong-ovate. Legs very long, compressed; tarsi longer than the joint before them, somewhat compressed.

"TELMESSUS SERRATUS. Surface covered with small warts arranged in some places in lines, with hairs proceeding from the front of them.

"The specimen is a male."

The following papers were also read:—

"Description of a new genus of Lamellicorn Beetles apparently belonging to the family Aphodiidæ, from India." By J. O. Westwood, F.L.S.

CHÆTOPISTHES, *Westw.* Corpus oblongum, glabrum, dorso valde sulcato. Caput antice deflexum, fronte semicirculari marginata. Mandibulæ membranaceæ? Maxillæ corneæ, lobo apicali in unguiculum curvatum acutissimum producto. Antennæ 9-articulatæ. Prothorax fere rotundatus, antice truncatus, medio profunde sulcatus. Elytra apicibus setosis, singulo 4-sulcato. Pedes lati, compressi, tibiarum apicibus angulatis.

CHÆTOPISTHES FULVUS, *Westw.* Fulvus, nitidus, capite et prothorace parum castaneis, hoc angulis posticis basique transverse impresso, impressionibus setulosis. Long. corp. lin. 1¾.—Hab. in India Centrali. D. Boys.

A memoir on the characters and geographical distribution of those groups in nature which are considered as typical of families, by G. R. Waterhouse, Esq., was also read, which led to an extended discussion on the geography of insects.

May 5th, 1845.—The Rev. F. W. Hope, President, in the Chair.

Captain Parry exhibited a small collection of insects chiefly from New Holland; [cxxv.] also an exotic Curculio, with two long Clavariæ springing from the elytra and thorax.

The President exhibited a large ant lion in spirits from the plains of Marathon.

Mr. C. Lamb exhibited a specimen of Deinacrida heteracantha in spirits, remarkable for its immense mandibles.

Mr. S. Stevens described a plan of setting the wings of moths so as to give them a curved and somewhat deflexed appearance, by cutting a groove down the centre of the narrow setting-board (in which the body of the insect is lodged) and giving the sides the proper deflexed curve.

The following papers were read:—

" On the genus Holoparamecus of Curtis." By J. O. Westwood.

After detailing the history of the establishment of this genus, and its identity with the genera Calyptobium, *Villa*, Amphibolonarzron, *Porro*, and Latrinus, *Walk.*, and the various observations made upon it by Messrs. Curtis, Aubé and Guérin-Méneville, the author shows its affinity to Latridius and Mycetæa, alluding especially to the remarkable circumstance that some of the species possess nine-joints to the antennæ, another ten, and another eleven. Whereupon Mr. J. F. Stephens stated that he had taken species of this genus on the wing at Hertford, Camberwell and South Lambeth.

" Notes on the supposed Sense of Pain in Insects." By Mr. C. Boreham; of which the following is an abstract. On pinning two moths (one through both the thorax and abdomen) in the daytime, they remained immoveable until their usual time of flight in the evening; whilst a peacock-butterfly pinned just before sunset was found early next morning as perfect as when left, and on removing the pin it flew away. Some beetles on being pinned at first remained for a short time inanimate, and then struggled violently as if endeavouring to escape from confinement; a specimen merely confined by a brace across the body performed the same motions. From three specimens of the common house-fly, engaged in cleaning their fore-feet, he cut off one of the hind legs, whereupon two of the insects continued the action without any signs of inconvenience, as did also the third, after moving a few inches.

Mr. C. Lamb stated that he had observed that Coleoptera when stuck with a pin which is subsequently removed die shortly afterwards; but the President stated that he had observed that the species of Colymbetes possess the power of repairing the injury done to the elytra by piercing them.

June 2nd, 1845.—The Rev. F. W. Hope, President, in the Chair.

Mr. Weir exhibited a fine specimen of the male of Dorthesia Characias, remarkable for the long white filamentous tuft at the extremity of the body.

[cxxvi.] Mr. S. Stevens exhibited living specimens of Rhynchites cupreus from Black Park, Bucks, and also from the north of England, taken on the flowers of the mountain ash, in company with Molorchus minor.

Mr. Douglas exhibited an apparently new species of Orthotænia, recently taken amongst heath at West Wickham.

Captain Parry exhibited a box of Coleoptera from China and the Himalayas, including several fine Lucani, and a new species of Trictenotoma.*

The Rev. F. W. Hope brought under the notice of the Meeting the destruction caused by white ants and other insects to the wooden sleepers used in the railroads in India; and reference to the kyanizing process having been made, Mr. J. F. Stephens stated that on one occasion he had taken a number of specimens of Thanasimus unifasciatus on palings at Camberwell, but that none were found on adjacent palings which had been kyanized.

The following papers were read:—

"Descriptions of two new genera of Carabidæ." By J. O. Westwood.

HELLUODES, *Westw.* Genus novum *Helluoni* proximum, habitu vero *Morionis* cum trophis *Anthiarum.* Caput maximum (prothorace multò majus); mandibulæ porrectæ, acutæ, intus inermes; maxillæ elongatæ, apice subunguiculatæ; palpi interni valdè curvati; externi maxillis vix duplò longiores; mentum in medio valdè emarginatum; labium angustum, elongatum; palpi labiales articulo ultimo præcedente multò minori; prothorax truncato-cordatus, marginatus; elytra depressa; pedes mediocres; tibiis anticis intus ante apicem emarginatis; tarsorum articulo 4to simplici.

HELLUODES TAPROBANÆ, *Westw.* Niger nitidus, labro femoribus apiceque abdominis piceo-rufis. Long. corp. lin. 15.—Hab. in Insulâ Taprobanæ. In Mus. D. Melly.

PLATYNODES, *Westw.* Genus (vel potius subgenus) novum *Morioni* proximum. Corpus magnum, latiusculum, depressum; caput magnum, planum, lævissimum, anticè bi-impressum, clypeo emarginato; labrum parvum, quadratum, anticè valdè emarginatum; mandibulæ magnæ, intus versus medium obtusè dentatæ; maxillæ et instrumenta labialia ut in *Morione orientali;* antennæ breves, compressæ, articulis apicalibus parcè setosis; pronotum capite brevius, longitudine latius; cordato-truncatum marginatum, stria tenui media impressa impressionibusque duabus ad angulos posticos; elytra lata, depressa, lævia, striis paucis tenuibus impressa, costaque tenui ex humeris ferè ad apicem ducta; pedes mediocres; tarsis brevibus, ut in *Morione.*

[cxxvii.] PLATYNODES WESTERMANNI, *Westw.* Niger lævis subnitidus, capite nitidissimo; labro et antennis piceis; elytris striis tenuissimis æqualibus, serieque punctorum intra margines laterales instructis. Long. corp. lin. 12 (mandibulis exclus.).—Hab. in Guineâ. Mus. Westw. A Dom. Westermanno communicatus.

An extract from a letter from Captain Boys addressed to Mr. Westwood, containing notes on the habits of the genera Dorylus, Ascalaphus, &c., was also read.

"Dorylus," he states, "is certainly more closely allied to Formica than to Mutilla, as far as the little experience I have had holds good." In a house in which Captain Boys resided at Gorruckpore, "a nest of these insects was located; and one evening they swarmed to such an extent as to become a perfect nuisance. A small orifice was discovered in the flooring (brick and earth plastered) immediately beneath the dining-table, from which hundreds were escaping. Those with wings, after moving about a few seconds, took flight; the apterous ones (which were no bigger than a common house-fly, or smaller), and to me appearing *true ants*, remained swarming, and entering in and out in the same manner as ants on a sunny day. This was at night. I collected a host of both kinds: I can therefore say positively that they live in society, excavate nests in the earth, and to the best of my belief are divided into neuters and workers."

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* TRICTENOTOMA ÆNEA, *Parry MSS.* Nigra subnitida, elytris æneis versus suturam cupreis, pubescentiâ tenui albidâ obtecta, prothorace utrinque pone medium spinâ acutâ armato; mandibulis porrectis, lateribus extus subsinuatis. Long. corp. cum mandibulis ferè unc. 3.—Hab. in Indiâ orientali prope montes Himalayanos. Mus. Parry.—*J. O. W.*

A specimen was forwarded with this communication of Acrydium (Tetrix, *Latr.*) Harpago, *Serville*, with the observation, that the insect is a true swimmer; the formation of its posterior legs might alone lead one to make a shrewd guess of the fact. It is found abundantly near the waterfalls at Mhow in Malwa, frequenting the sedges on the banks of the stream. He had often seen them swim *under* water from one bank to the other, a distance of three or four yards; and they had several times tried his patience by remaining under water attached to a stone. He had constantly observed a small, silver-like bubble of air on each side of the thorax, close under the base of the lengthened scutellum, and not unfrequently a third at its apex (as is seen at the caudal extremity of the Dytisci). They swim with rapid strokes of both posterior legs thrown out together, and at no small pace, turning as freely as a Gyrinus when a capture is attempted. Occasionally they will walk steadily down a reed some feet under water, and there appear to feed on the small weed which is attached to it. The steps of the bathing-ghat, from which the water had receded, being covered with the above-mentioned weed, were a fine field for them. Their mastication of this weed he had repeated opportunities of witnessing; but they seemed to prefer that which was submerged, as they were more abundant on the steps below water, except where basking in the sun.

Of a species of Ascalaphus remarkable for its short dilated abdomen, long and very clavate antennæ, and yellow maculated body, the writer observes that he had often found the perfect fly on tall grass knee-deep in water, whence he suspects that the larva may be aquatic. The Ascalaphi and Myrmeleones when captured emit a very offensive [cxxviii.] smell. He had obtained twelve or fourteen species of Lucanus from the vicinity of Almorah, in the Himalayan mountains, generally found feeding upon rotten fungus, but had never taken any species in the plains. He had also captured a Megacephala (apparently identical with M. euphratica) at Nusseerabad.

A species of Embia was also forwarded, with the observation that it was not uncommon, but that its habits were remarkable, as it elaborates a kind of web from the mouth under which it conceals itself. He had also captured four species of bees whose habits whilst at rest are curious, since at that time they hold on to a twig by the mandibles, with the body stretched out at right angles from it, without any support from the legs, which are drawn up close to the body. Specimens of these insects were not forwarded, so that the genus cannot at present be determined.

July 7th, 1845.—The Rev. F. W. Hope, President, in the Chair.

Mr. Edward Doubleday exhibited a case of nocturnal Lepidoptera from Sydney, including three species of Oiketicus, a new species of the genus Doratifera (with drawings of its preparatory states, and of which the larva stings very acutely when touched), and other new and interesting species.

Mr. Westwood exhibited two monstrosities in the male of the honey-bee, in one of which the two hind-feet were not more than a fourth of the normal size (this being a case of retarded development), and in the other the left antenna was abbreviated with some of the joints coalescing and internally serrated.

Mr. Desvignes exhibited specimens of Eupithecia togata, *Hubn.*, a species new to this country, which had been taken at Black Park, Bucks, in the middle of the preceding June. Likewise a very dark variety of Hemerophila abruptaria.

Mr. J. F. Stephens exhibited specimens of the rare Anarta vidua and cordigera and Psodos trepidaria, recently captured by Mr. Weaver in Scotland.

Mr. Weir exhibited specimens of both sexes of Ino globulariæ from Lewes, the female being now for the first time noticed in this country.

Mr. Frend exhibited specimens of the larvæ, pupæ and imago of Prionus coriarius, and observed that it only requires fourteen days to pass from the first to the last of these states.

Mr. W. W. Saunders exhibited several new Australian species of Longicorn beetles allied to Molorchus, from Hunter's River.

Mr. Westwood exhibited a specimen of Trictenotoma Childrenii, and pointed out the distinctions between it and Captain Parry's new species from the Himalayas, exhibited at the previous Meeting. He also pointed out the peculiarities in the structure of the lower parts of the mouth of this genus, which had not been previously described.

A description of the male of Gastroxides ater, an Indian species of Tabanidæ, was read by W. W. Saunders, Esq., F.L.S. This sex differs in having the head broader [cxxix.] than the thorax, with the eyes large and vertically contiguous, and in having a broad rufous band across the abdomen, occupying the apex of the first, the whole of the second and the base of the third joints. The female was described by Mr. Saunders in the third volume of the Transactions of the Society; and the male now described is in the collection of Colonel Hearsey.

Extracts from a letter addressed by Captain Boys to Mr. Saunders were also read, containing a notice of the locusts of India, and of a new species of Idmais (belonging to the Pierideous Butterflies).

August 4th, 1845.—The Rev. F. W. Hope, F.R.S., President, in the Chair.

Mr. Raddon brought for distribution a number of specimens of the rare Actebia præcox, and exhibited Goliathus Drurii and torquatus, Mecynorhina frontalis, Petrognatha gigas and other rare insects from the Cold Coast.

Mr. Douglas exhibited Adactylus Bennettii and other Lepidoptera, from St. Osyth in Essex. Also illustrations of the transformations of Tortrix Galiana, which feeds, in the larva state, on the wormwood, and its parasitic Ichneumon.

Mr. Samuel Stevens exhibited a variety of insects recently captured at Arundel, including specimens of Claviger foveolatus, obtained from the nests of two different species of ants.

Mr. Edward Doubleday exhibited drawings of several species of Papilio, including P. Hippodamas, *Bdv.*, P. Polyeuctes, *Doubled.*, and P. Evan, *Doubled.*, allied to P. Payeni, from the Himalayan Mountains. He also described a complicated apparatus for capturing and killing minute Lepidoptera, invented by Herr Reissig.

The following memoirs were read:—

The Completion of "The Biography of Fabricius," translated from the Danish by the Rev. F. W. Hope, who announced his intention of presenting the Society with impressions of a portrait of Fabricius, to accompany the memoir in the Transactions.

"Description of a new species of Grasshopper from New South Wales." By W. F. Evans, Esq.

EPHIPPITYTHA MACULATA, *Evans*. Wing-cases pale green, each with sixteen to nineteen or twenty roundish spots of a bluish black colour running along the inner edge of the marginal or principal nervure and the inner margin of the wing-case; wings one-eighth of an inch longer than the wing-cases, of a pale green colour, becoming gradually of a lighter tint towards the outer margin, with a pink tinge near the apex (as in the wing-cases) and a single bluish black spot; tibiæ of the hind legs with four bands of fuscous-brown, of which colour are also the two basal tarsi. Expanse of wings 4½ inches; length of body 1¼ inch. —In Mus. Britann., Hope, and Evans.

[cxxx.]. "Description of a new species of Paussidæ from India." By J. O. Westwood, F.L.S.

The insect in question, forwarded by W. H. Benson, Esq., of the Bengal Civil Service, is closely allied to Ceratoderus bifasciatus, forming therewith a separate genus divisible into two subgenera, as follows:—

MELANOSPILUS, *nov. gen.* (*vel* CERATODERUS).

Antennæ clavâ depressâ, quasi 5-articulatâ; palpi maxillares articulo 2do maximo, 4to gracili, præcedenti minori; palpi labiales articulis tribus, 3tio majori ovali apice subtruncato; pedes haud dilatati tibiis apice haud calcaratis tarsisque articulo basali tribus sequentibus majori.

Subgenus 1. CERATODERUS.

Sp. 1. CERATODERUS BIFASCIATUS, *Kollar*, *Westw. Arc. Ent.* ii. pl. 58, fig. 1.

Subgen. 2. MERISMODERUS, *Westw.*

Corpus supra opacum, plagâ mediâ elytrorum politâ; palpi maxillares articulo 2do ferè rotundato depresso; prothorax bipartitus lateribus angulatis; tibiæ apicibus externè obtusè truncatis.

Sp. 2. MELANOSPILUS (MERISMODERUS) BENSONI, *Westw.* Luteo-fulvus, prothoracis parte anticâ angulis productis subacutis, parte posticâ quasi 4-lobatâ, elytris versus medium plagâ magnâ nigrâ subtriangulari ad suturam haud extensâ. Long. corp. lin. 3.—Hab. in Indiâ Orientali. D. Benson.

"Notes on the Habits of various Indian species of Paussidæ and Cetoniidæ." By Mr. Benson, in a letter addressed to Mr. Westwood.

The species of Paussidæ above described by Mr. Westwood is stated by Mr. Benson to have been captured by him under a brick near the river Ganges, about fifty miles below Cawnpore, last year, in the cold season, and this year, in January, he took another under a stone in a black-ant's nest, between the Savalik range and Saharunpore. On Mr. Benson's estate, about 7500 feet above the level of the sea, at Rockville, Landour, Mussoorie, Dr. Bacon last year took a Paussus by sweeping in the grass, closely allied to Paussus denticulatus, *Westw. Arcan. Ent.* ii. pl. 92, f. 1, but which Mr. Benson has subsequently distinguished under the name of P. Nauceras. At Rajpore, in the valley of the Dhoon, Dr. Bacon had also taken P. pilicornis, *Donov.*, and a larger species as yet unfigured, which Mr. Benson has since described under the name of P. Baconis. It was captured in a sweeping-net among grass and bushes.

A small species of Valgus (fam. Trichiidæ), with four small acute protuberances on the podex, was also forwarded. This species loves to bathe itself in the pollen of dahlias at Landour. (The specimen is so saturated with grease as to be undeterminable).

He had captured a Cetoniideous insect, which he regarded as the female of Heterorhina Hopei, and which was no other than H. Bengalensis, as out of hundreds of H. Hopei which he had seen and taken there was not one female, whereas all the [cxxxi.] specimens of H. Bengalensis proved to be of that sex; the species should therefore take the name of the male, Bengalensis being inapplicable to a hill-species. The wild indigo is a favourite resort of this species and of H. nigritarsis, as well as of a coppery Cetonia. H. glaberrima, *Westw.*, frequents sweating wounds in oaks in great profusion, and is accompanied more sparingly by Rhomborhina opalina and R. apicalis. Jumnos Roylii is abundant in the hollows of oaks, and is frequently taken in flight. A species of Cetonia of a velvet-black colour, with a red band round the thorax and a pale golden spot on each elytron, without any visible external difference between the sexes, somewhat resembling C. tricolor, but with the thorax rounded and very different from that insect or any Polybaptus, occurs chiefly on the Hybisci, and especially Rosa Sinensis, at Rajpore, and even as high as 7000 feet above the sea. Of Dynastes Hardwickii, figured by Capt. Boys in the 'Journal of the Asiatic Society of Bengal,' N.S. no. 54, Mr. Benson had taken two males and a female, the latter without horns; also an intermediate male, with a very short horn on the head and only the humeral horns of the thorax. Many Chinese forms occur at Landour, among them Oniticellus cinctus, Callidea ocellata, and a Sagra which he took in abundance at Rajpore, but it is very local: the males and females differ in the toothing of the hinder tibiæ. When disturbed they throw themselves off a bush, but are active when on the wing. Their brilliancy suffers much in drying.

" Note on the production of a Queen Bee from a neuter larva, and on the impregnation of the Queen." By Mr. Golding; accompanied by a specimen of the queen's cell artificially produced.

On the 28th of June, 1845, the writer placed a bit of comb containing workers' brood in one of his hives which had lost its queen. Two days afterwards he removed the royal cells which it contained, whereupon the bees immediately (July 1st) commenced three royal cells, from which, on the 12th July, two queens were hatched, the third having proved abortive. The writer agrees with Mr. Westwood that there are no royal eggs, but only male and female ones, the larvæ produced from the latter being subjected to two distinct modes of treatment; the peculiar treatment of the brood destined to royalty consists, in Mr. Golding's opinion, far more in the singularly different construction of royal cells, than in any subsequent treatment of the brood deposited in them: he has in fact very little faith in the *royal jelly* notion.

It appears certain to the writer that the impregnation of the queen-bee takes place in the open air. Young queens, when but a few days old, have been repeatedly noticed to leave the hive, of which the writer mentions an instance observed by himself, where a young queen, which had left the mirror hive, mounting high in the air on her departure, was found to return after an absence of six minutes, when a small white substance, about as large as a pin's head and somewhat soft and ragged, was seen adhering [cxxxii.] to the extremity of her body. (This is what is alluded to by Dr. Bevan in the 'Honey Bee,' p. 35, and which Mr. Golding considers to be evidence of fecundation.) He considers that it is invariably the *old* queen of the stock which goes off with the *first* swarm. (See article "Swarming" in Dr. Bevan's 'Honey Bee,' chiefly contributed by the writer: v. Advert. p. viii.) He had traced a *marked* queen from hive to hive, in first swarms, until she was three years and ten months old, the oldest recorded. He had taken much pains in tracing the queens, sometimes slightly notching the tip of the wing, or cutting off an antenna, and always with the above result; indeed, for some days after the first swarm leaves the hive there is no queen at liberty in it, until the senior princess comes forth and commences piping. Another interesting instance to the like effect had occurred during that and the preceding season. A labourer in his employ, George Waters, an excellent practical apiarian, observed last year, that on the coming off of a first swarm, the queen in vain attempted to fly, falling from the stool. He gave her to the swarm, after noticing that one wing was much injured. This swarm was again left single-hived the then present year, and on their swarming he again observed the same disabled queen attempting to join the swarm; thus proving not only that the old queen issues with the first swarm, but also that Hüber was probably right in his idea that one act of impregnation suffices for the life of a queen, as in this case the queen was unable to fly, and therefore there could be no repetition of the act *whilst on the wing*. On the decease of the old emigrating queen bee, it is of course necessary that a fresh queen should be produced; Mr. Golding has in fact proved that colonies do sometimes—always, he supposes, when needed—raise young queens without swarming. In fact, being convinced that queens after their third season become less prolific, he has sometimes destroyed the old queen of a first swarm before putting it back, purposely that the colony should have a young queen; families which have old queens most frequently failing from their loss or diminished fecundity.

On the 9th of June, 1832, Mr. Golding's Hüber-hive swarmed; and upon examining it directly afterwards, it was found to contain three royal cells sealed up and one unsealed, which was also found sealed up on the 14th. On the 29th of June, 1830, Mr. Humphrey's Hüber-hive swarmed, and on examining it three closed royal cells were found, and five others in various stages, there being certainly no queen at liberty in the hive at the time.*

[cxxxiii.] September 1st, 1845.—The Rev. F. W. HOPE, President, in the Chair.

A new species of Goliath Beetle, sent from Cape Palmas by Dr. Savage, and a new Australian Phasma, were exhibited by the President.

Capt. Parry exhibited Goliathus Smithii, Passerinii, and other rare Coleoptera from Port Natal.

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* It is proper to observe, that several of the above observations were written by Mr. Golding in reply to a suggestion made by me to him, that as the swarming of the hive-bee was analogous in so many respects to that of other social insects, it seemed reasonable to suppose that the primary object of the swarming was the impregnation of the queen bee, and consequently that it was the newly-hatched princess which went off with the swarm, the old queen remaining in the hive not requiring a second impregnation.—*J. O. Westwood.*

Mr. Samuel Stevens exhibited Mythimna turca, Alcis sericearia and roboraria, Eupithecia togata, *Hb.*, Phycita Abietella, Graphiphora rhomboidea, Polia tincta, Triphæna fimbria, Cucullia Lychnitis and other Lepidoptera, chiefly from Black Park, most of which had been set according to a plan which he has adopted in order to obtain great uniformity in the position and deflexion of the wing. The plan consists in having a slab of cork cut with a longitudinal groove down the middle for the reception of the bodies of the moths, and with the sides sloped for laying out the wings, the slopes being so cut as to bring the apex and hinder margin of the wing to nearly the same level as the lower portion of the thorax. Setting-boards with different-sized grooves and slopes are of course required for different-sized insects.

Mr. Douglas exhibited eight new species of small Lepidoptera, since described and figured in the 'Zoologist.' Also a variety of other rare species, including a specimen of Orthotænia quadrana, *Hübner*, taken at West Wickham on the 27th of May.

Mr. Bedell, exhibited numerous specimens of a small moth, Gracillaria V-flava, and its metamorphoses, taken in a wine-cellar, the larvæ of which are supposed to feed on Rhacodium cellare. Likewise a specimen of the rare Acronycta Alni, taken on hazel at Boxhill on the 11th of August.

The following memoirs were read:—

The continuation of a memoir "On the New Holland Cryptocephalidæ." By W. W. Saunders, Esq.

PLEOMORPHA, *W.W.S.*

Head vertical, immersed in the thorax nearly up to the eyes. Antennæ short, 1st joint robust, pyriform, 2nd short, turbinate, 3rd to 6th slender, gradually increasing in length, 7th to 10th broad, triangular, terminal joint broad, ovate. Thorax transverse, rounded and gibbous in front, with the centre of the hind margin produced. Elytra rounded at the apex, forming with the thorax an obtuse oval.

From the distinctly-serrated club of the antennæ of the minute insects composing this genus, the author thinks the true place of it is not far from Clythra.

Sp. 1. PLEOMORPHA DAVISII, *W. W. S.* Head rufous, with a black transverse line; antennæ rufous, club black; thorax rufous; elytra punctate-striate, testaceous, with the base, suture and apex black. Length $\frac{10}{100}$ths of an inch.—Taken near Adelaide by Mr. Davis. In Mus. Brit. and Westwood.

[cxxxiv.] Sp. 2. PLEOMORPHA RUFICOLLIS, *W. W. S.* Head black, with a patch of rufous on the face; antennæ rufous, club black; thorax bright rufous; elytra dark bronzed green, punctate-striate. (Crytocephalus æneipennis, *Dej* ?) Length $\frac{8}{100}$ths of an inch.—Inhabits Van Diemen's Land. In Mus. Westwood.

Sp. 3. PLEOMORPHA RUFIPES, *W. W. S.* Head dark bronzy brown; antennæ rufous, club black; thorax and elytra dark bronzed brown; legs bright rufous, with dusky tarsi. Length $\frac{8}{100}$ths of an inch.—Inhabits Van Diemen's Land. In Mus. Westwood.

"Further notes on the Honey-bee." By Mr. Golding and Dr. Bevan.

In this communication Mr. Golding again affirmed that the first swarm from a hive is led off by the queen bee. He considered that it was chiefly owing to the striking peculiarity in the royal cells that the insects developed therein are so different from the ordinary individuals in the hive. He adopts the opinion of Hüber, that the great number of males in a hive is rendered necessary in order to ensure the fecundation of the virgin queen in her flight in the air, and that the law of primogeniture seems to be followed strictly in the emigration of young queens. From the fact that the long piping note of a young queen at liberty may be heard—but with short intervals of a minute or two—without intermission, from the time of her hatching until she comes off with the swarm, together with their having been seen to leave the hive in a day or two after being hived, he thinks it may be safely inferred that impregnation in the case of the young emigrant queen takes place after she becomes sovereign in her own right, and that she never leaves the hive until accompanying the swarm.

Dr. Bevan's communication was a reply to a note addressed to him by Mr. Westwood, and is as follows:—

"Machynlleth, August 25, 1845.

"My dear Sir,—I was well pleased to find from your favour of the 12th inst. that our opinions on the relative perfection of queen and worker bees were in unison; and also to learn, from your letter to Mr. Golding, that we agree as to the probable effect of the pabulum which is supplied, as well to the development of animal as of vegetable life. The instance which you refer to of the effect produced on flowers by the soil on which they bloom, and of course by the kind of nutriment which the plants derive therefrom, is very much in point. So likewise is its effect on fruit. It is well-known that in the cider counties the juice of the same fruit, treated in the same manner, will produce very different sorts of cider, according to the soil by which the trees are nourished. In Herefordshire to wit, the clay side of the county affords a sweet pleasant liquor, the sandy side a liquor that is rough and harsh, the fruit being the same. The mere dimensions of the royal cell without other concomitants would, I conceive, only cause the evolution of a large worker bee, not a bee undergoing such wonderful changes [cxxxv.] as a queen presents, and capable of continuing its race. To accomplish this end, supported as we are by various analogies, it is surely reasonable to believe that much, if not the whole, depends upon diet. With yourself, I should much like to obtain the analogies of other swarming insects, such as humble-bees, wasps, ants, &c., in support or otherwise of this theory, but must transfer the research to the eyes of younger investigators and the resources of another Hüber.

"As I now, for the first time, learn what was stated in the British Association at Cambridge,* and am unacquainted with the particulars, which ought to be minutely ascertained before an opinion resting on such abundant evidence can be shaken, that matter must stand over for the present. I should like to know what evidence can be afforded that the queen which accompanied the swarm *was* a young one; also, whether it be clearly ascertained to have been a first swarm, and what queen, if any, was left behind. The hive might have contained a superannuated queen, which died during the maturation of her successor, though in that case I should conceive that the family would not have been populous enough to send forth a swarm. But she might have issued unknown to her proprietor, and have lost her life from some accident prior to being hived, in which case the swarm might return, and might in a short time afterwards re-issue with a young queen. Upon one or other of these suppositions only can I ever believe a prime swarm would be accompanied by a young queen.

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* It was stated by one of the members of the British Association, at the meeting at Cambridge, that he had observed a first swarm led off by a newly-hatched queen.—*J. O. W.*

"The disproportionate number of males usually found in a family of bees, in summer, has long been a stumbling-block with naturalists; but it is a difficulty which Hüber hoped he had been able to remove, by what however can only be regarded as an ingenious hypothesis, viz., that as the queen is evidently impregnated in the wide expanse of the atmosphere, this may render a numerous race of males desirable, that she may run no risk of experiencing disappointment in meeting with them. This aërial flight, having impregnation for its object, is countenanced by a similar proceeding among ants and humble-bees. In a correspondence which Feburier held with Mr. Knight, he mentioned a circumstance which fell under his own observation, tending to show that the union of the sexes in bees takes place after the manner of whales and human beings. If so, the horny prehensile appendages which appertain to the genital organs of wasps and hornets would not be needed. The evidence afforded by Mr. Golding of the act having been performed, taken *per se*, is certainly merely presumptive; but confirmed as it is by Hüber's declaration, that a portion of the drone's organ (*corps lenticulaire*) was repeatedly seen by Burnens in the vulva of the young queens, I think Mr. Golding's observation carries weight with it. I never knew nor heard of a princess having been impregnated prior to her quitting the parent [cxxxvi.] hive. The experience of Hüber, Mr. Golding, myself and other apiarians shows that impregnation never takes place till after she has been established in her new abode. In all probability, if she quitted the old stock to take her aërial flight, the next in succession would be set at liberty during her absence, and when she returned, be prepared to receive her in hostile array, an event which the bees appear, on all occasions, sedulously to guard against.

"As regards the law of primogeniture in the royal brood, I think you will be satisfied that it is observed, when you consider the natural enmity which the royal insects bear towards each other; so great as to render it intolerable for more than one to be at liberty in the hive at the same time. The first-born pipes in a shrill tone, her voice being heard through no other medium than that of the air and the hive, while the next in succession, and sometimes even the next but one, sends forth a hoarse note, being heard through the additional medium of the royal cell. And the workers allow not one of the imprisoned princesses to emerge till the swarm issues forth, or till it is decided that there shall be no further issue; in which latter case the royal cells are left unguarded, and the senior princess is allowed to despatch all the embryo princesses, which she very soon accomplishes, and thereby prevents the possibility of any competition for the throne.—*E. Bevan.*"

A discussion also took place on the potato-disease, the President attributing it chiefly to the attacks of the wire-worm, whilst Mr. Spence and others referred it to atmospheric causes.

October 6th, 1845.—The Rev. F. W. Hope, President, in the Chair.

The President exhibited a large collection of Ichneumonidæ, recently captured by himself at Southend. Also some plates of exotic Lepidoptera, drawn by Mr. Spry for the Transactions, containing figures of new species of Charaxes from his own collection. Likewise a number of specimens of Scolopendræ of small size, which he had found in myriads infesting diseased potatoes at Southend, which he was thence induced to consider as the chief cause of the evil; an opinion which was however opposed by several of the members, Mr. Edward Doubleday detailing the results of microscopical observations made in this country and abroad, proving the growth of a minute parasitical fungus within the diseased part of the tubers.

Captain Parry exhibited two cases of insects from Caffraria, including Manticora latipennis, *Waterh.*, and other new and rare Coleoptera.

Mr. W. W. Saunders exhibited a box of exotic insects, including a new and most brilliant species of Morpho from South America, several species of Thynnidæ taken *in copulâ*, and several species of Zeuzeræ and other case-making Lepidoptera from New Holland.

Mr. Evans exhibited a specimen of Sphinx Atropos, taken on the rigging of a ship forty miles from land, off Cape Clear Island, and one of Porthesia auriflua, taken 250 miles from land in the Bay of Biscay.

Mr. F. Smith exhibited specimens of Nomada pacata, one of which was gynandromorphous.

[cxxxvii.] Mr. Edward Doubleday stated that the British Museum had recently acquired a collection of Lepidoptera from the north of Bengal, containing a new species of Papilio and many other new species, and that a collection from Honduras, formed by Mr. Dyson, had also been recently received by the Museum.

The following memoirs were read :—

The continuation of Mr. Saunders's Descriptions of New Holland Cryptocephalidæ.

Sp. 4. PLEOMORPHA CONCOLOR, *W. W. S.* Entirely dark blue-green, except underside of 1st joint of antennæ, which is rufous; elytra shining punctate-striate, the lateral striæ more deeply. Length $\frac{12}{100}$ths of an inch.—Inhabits Australia. In Mus. Parry.

Sp. 5. PLEOMORPHA ATRA, *W. W. S.* Entirely black, except underside of first two joints of the antenæ, which is rufous, and the club, which is pitchy brown; mandibles strongly projecting; elytra punctate-striate. Length $\frac{15}{100}$ths of an inch. Inhabits Western Australia. In Mus. Hope.

A letter from John Hogg, Esq., F.L.S., addressed to Mr. Westwood, on the alleged habits of Crabro cephalotes, dated Norton, July 19, 1845 :—

" On my return home on the 28th of June, I observed a couple of the handsome Crabro cephalotes about my hot-house, and I found that they had nearly constructed a somewhat curious nest or deposit for their eggs. It is composed of fine gravel or sand, strongly agglutinated together with clay, and contains four cylindrical cells, which are quite closed up at the top. I watched one of the insects sitting, most likely the *female* depositing her eggs, in the last cell, which she afterwards finished; and which she has now deserted, as I have not seen her for many days.

" The nest is *firmly* fixed on the lime and gravel surface of the wall of the hot-house, and is itself nearly of an *equal hardness* with it. I do not doubt but each cell contains one or more eggs, and from which in due time young insects will come forth.

" The genus Crabro of Fabricius is a part of Linnæus's genus Sphex; and I find that the latter author has given a short account of the mode adopted by the Sphex sabulosa (now called Ammophila sabulosa), of making its hole in the sand, and of depositing its eggs in the bodies of insects (see Syst. Nat., edit. 12, p. 941, vol. ii.); and he also describes (p. 942) how the Sphex figulus makes its nest in holes in wood, and 'nidum *argillâ claudit.*' The mode there described of that insect using *clay* is similar to that adopted by the Crabro cephalotes, but I did not notice it conveying a spider, or the larva of any other insect, into its nest; though perhaps, if the cells were examined, some such insect might be discovered within them.

"A few days ago I observed some sparrows on their nest in a tree in my garden pulling about something which appeared like a bundle of white feathers; a short time afterwards I went to water some flowers below the same tree, when to my
[cxxxviii.] surprise I found on the ground a beautiful nest of the Vespa Britannica. The sparrows having, however, dug holes with their bills in the lower portion of it, in search of larvæ, or of something to devour, had a good deal injured this most elegantly-made nest."

In a subsequent communication Mr. Hogg states that he is quite certain the insect which formed the nest "is the *same* as that which I sent to you some few years ago, and which *you named* 'Crabro cephalotes;' and the reason of my troubling you with my communication was, that I strongly suspected that its economy in *nidification* has never been fully ascertained. But as I before said, I have not at hand Shuckard's 'Monograph of the Fossorial Hymenoptera,' or any other modern work which describes the species. That it may sometimes make its nest in the holes of rotten wood or in sand-banks, I do not know; but that it does *not always* do so, the present example clearly proves.

"One of the insects (probably the *male*) I only saw one day; it was *inside*, flying up and down the glass-light of the hot-house. The other, or the *female*, was then as usual forming her nest. But I did not capture either of them, because I thought they would make more cells, and I should have frequent opportunities for doing so. Should either of them return, I will take care and secure it.

"I yesterday (22nd July, 1845), opened one of the cells, when I found only a single *larva*, which is soft, yellowish white, apodous, and resembling that of the *common wasp*. The entire cell was lined with a white membrane; but I did not notice, after the most minute examination, any fly, spider, or any remains whatever of any insect, and no egg. This was the *same* cell which I mentioned in my last letter as that in which I saw the *female* Crabro sitting, and then closing up its top.

"I have thought it better to send you herewith pieces of the nest, from which you will see how it has been formed of clay and sand; and you will also observe a part of the membrane which lined the inside of the cell. The *larva* (also inclosed) was at first quite alive; but, owing to my having injured its head as I was opening the cell, it became yesterday evening nearly motionless. I observed, in using a strong lens, that here and there some pieces of sand do not fit quite close, and are unfilled up with clay; this will *allow a little air to reach* the inside of the cell.

"The cells are of an elongate-ovate form, varying from ⅝ths to ⅞ths of an inch in length, the four being applied side to side and measuring 1¾ inch across their upper part, each cell being about ⅜ths of an inch across, and the diameter of the interior of the cell which I opened being about ¼th of an inch. The exterior surface of the nest projects from the surface of the wall about ⅜ths of an inch. Each cell is quite separated from the adjoining one and has no internal communication with the other.

"The tree in which I saw the sparrows on their nest, pulling about the nest of the Vespa Britannica, is a large pear-tree trained against the wall of my house: I examined the nest in which the sparrows were, but found no remains of the wasp's nest, only
[cxxxix.] three gaping unfledged sparrows, and many feathers, some pieces of paper and cloth, to keep them warm and snug; and I likewise examined the tree around, in

order to discover the *peduncle* of the wasp's nest, but I could see no traces of it. The wasp's nest had then been brought from some of the neighbouring trees or shrubs; this could easily be done, as it is extremely *light*, and measures only about 2 inches in its *larger* diameter, and about 1⅜ inch in its *smaller* diameter."

November 3rd, 1815.—The Rev. F. W. Hope, President, in the Chair.

It was announced that the second part of the fourth volume of the Transactions was ready for delivery to the members.

Mr. Tatham exhibited several splendid species of Carabi, one belonging to a new species recently received from China.

The President exhibited a box of insects received by him from Dr. Savage, collected at Cape Palmas, containing a new Goliath beetle. Also several boxes of insects recently forwarded from Landour in the East Indies by Mr. Benson, including several new species of Coleoptera.

A letter from Captain Boys, on the habits of various Indian species of insects, addressed to Mr. Westwood, was read, dated from Simla in the Himalayas, August 2nd, 1845:—

"It is a curious fact, of which I have undoubted proof from ocular demonstration, that both male and female insects of the genus Copris are mutually employed in forming the casing of earth after the deposition of the ova within the cow-dung. When at Mhow, in search of scorpions on the bank of a rivulet, in turning up a large stone I exposed the perpendicular section of an excavation formed by them, and which was about two feet from the upper level, immediately below a large dropping of cow-dung. The stone was on the slope of the bank, the cavity containing four balls, two nearly finished and two about half-size. The male and female were hard at work, and after a little surprise at the light, continued the operation of adding earth to the smallest ball; this was performed by rolling it round and round, scraping up the mud which gathered, and by pattering it firmly with the fore and hind tibiæ. When I use the word pattering, I only mean to say the insects kept their legs in constant motion on the ball, as obtains in Sisyphus when rolling its pill; but in order that it should collect more earth, the male was frequently employed in digging beneath it. I could not detect the female in the act of depositing her ova. One side of every ball is very thin (comparatively), which leads me to believe that on this side the ova are placed. In forming the nucleus of cow-dung, the female is the principal worker; she rolls it round and round, digging occasionally, so as to let it sink as the earth is thrown up above, and in this work the male also assists.—The small insect allied to Aphodius (Chætopisthes fulvus, *Westw.*) is one of our commonest, though not indigenous to these hills at *this* height; it abounds in horse- and cow-dung.—A small species of Tridactylus is also very common; during the rains, with a sheet and a lantern, myriads may be [cxl.] taken. Was it perfect or in the larva state? or rather I should ask if the wing-cases were black?—The larva of Heterorhina Roylii to my knowledge may become a pupa, and *perfect from the pupa* in less than two months, however long it may have been in the larva state.—I arrived here on the 1st of June, and collected a great number of larvæ of all sizes, which I brought home, accompanied with the rotten débris of oak-dust in which I found them. Of these, six formed cocoons of the earth and oak-dust, and two were perfect the day before yesterday, and two more came out *yesterday, but were not* H. Roylii, though certainly I could in nowise distinguish a difference in any of the larvæ. One was a bronzed Cetonia (Heterorhina?) with faint white lines on the elytra and thorax; the other a bronzed green with spots.—Does the Atlas moth feed on oak-trees in its larva state, or on the hill species of Berberis? At Almorah I took the cocoon from the latter, but never saw the larva; here I have taken the insect in the latter stage (at least I conjecture it will turn out to be the moth in question) on the oak, and the cocoon looks very like what I took at the former place. The larva of the one now alluded to is very like the one which forms the Tussa silk (I believe an Actias also), but the nidus is like whitey-brown paper and no thicker, in this respect resembling that formed by Actias Luna, but the caterpillar is not the same.—I heard a few days ago from a friend (W. Benson, Esq.), that a novel species of Trictenotoma had been captured in his neighbourhood (Mussoorie), as also either a variety of, or novelty allied to, Geotr. longimanus. The former he describes to me as more nearly allied to the Prionides than to the Cerambyces, though possessing connexion with the Lucani as far as the antennæ are concerned. The thorax in his specimen is strongly *toothed* as in many species of Prionus.—From the body of an unfortunate goat, carried off by a leopard some days since, I have lately taken three species of Necrophori; one species large, *i.e.* 1½ inch, and wholly black; the second black with red patches, ¾ inch; and the third I suspect is a shade removed from, or may be, a Necrodes. The male and female are both black, but the former is easily distinguished by the form of the posterior thighs, which are strongly incrassate. All these insects if not very strongly pressed when taken *smell of musk*, but their stench is intolerable if roughly handled. A largish species of red ant forms its nest among the leaves of mango-trees. I have not yet met a description of it, though it cannot have escaped so long, being not only common, but the insect is a perfect nuisance to all pic-nic-ians, and must have drawn attention. The *queens* or females, when winged, are a very fine apple-green in the colour of body. I took them from the nest near Mhow at several times. The web which they elaborate from the *mouth* will bear writing on, and take ink as legibly as paper. I never saw any but red workers making the web. In this country the natives use them for the purpose of getting rid of wasps' nests (though I do think the remedy equally bad with the cure). The branch on which the colony has formed its leafy home is carefully cut through and transported to the vicinity of the wasps, and in a [cxli.] few days a total extirpation of the latter ensues. The ground is covered with the bodies of the Vespæ, and the ants go about biting every *human* being that they happen to crawl on. Is not the remedy as I stated? It is however only used when the wasps are in a chopper or thatched roof, and not easily to be got at for extirpation. I have never observed their nests but on the mango-tree and Ficus Indica. I would wish to know if the common cabbage in England is ever infested with an apode (?) Acarus, or something allied thereto, and resembling a flask. *Here* I have taken them for the first time, and for some time doubted my own eyes, even with a microscope to help them. The creature is fully one-third of an inch long, but the snout or mouth is so minute as to require the aid above-mentioned.*—I have lately taken quantities of Colliuris; the larger one with black legs is a different species from those with red. Of this I doubted some time ago, but all my suspicions are now perfectly set at rest."

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* [Probably a female Coccus of an undescribed species.]

December 1st, 1845.—The Rev. F. W. Hope, President, in the Chair.

Mr. Bedell exhibited a specimen of Anacampsis alacella of Zeller and Fischer, a species new to Britain, which he had captured on Leatherhead Common on the 17th of August last.

Mr. Edward Doubleday exhibited a box of Lepidoptera from the highest range of the Rocky Mountains in North America, collected by Mr. Burke, the majority of which were strikingly analogous to European species, including a species of Parnassius, a genus hitherto found only in the Old World, although Dr. Boisduval had suggested the probability of its existence in the northern parts of America. Also a box of Lepidoptera from Borneo, collected by Mr. Hugh Lowe, jun.

The following memoirs were read :—

" Descriptions of a new Longicorn Beetle (since published in the 'Annals of Nat. Hist.') and of a species of Lucanidæ (Lucanus macrognathus) from Borneo." By Adam White, Esq.

" Descriptions of two new Goliath Beetles from Cape Palmas, in the Collection of the Rev. F. W. Hope." By J. O. Westwood.

SMICORHINA, *Westw.*

Corpus oblongum, depressum, supra velutinum, lateribus subparallelis, pedibus elongatis. Caput in mare laminis duabus parvis horizontalibus in vertice clypeoque in cornu breve recurvum producto. Prothorax lateribus pone medium ferè rectis, margineque postico ferè recto. Processus mesosterni brevissimus. Tibiæ anticæ maris extus tridenticulatæ, intus pone medium serratæ.

SMICORHINA SAVII, *Hope MS.* Nigra, pronoto sanguineo, vittis 4 nigris, intermediis duabus abbreviatis, capite supra cinereo-velutino, pedibus nigris, femoribus tibiisque sanguineo variis. Long. corp. lin. 13.—Hab. in Africâ tropicali [cxlii.] (D. Savage). In Mus. Hope.

MEGALORHINA, *Westw.*

Corpus oblongo-ovale, subdepressum, supra velutinum, elytris posticè angustioribus. Caput maris supra ferè planum, denticulis duobus ad marginem internum oculorum, clypeo in cornu valdè elongato apice bifido producto. Prothorax ferè semicircularis, convexus. Elytra subconvexa, velutina, colore pallido guttata. Tibiæ anticæ elongatæ, curvatæ, externè ferè ad apicem emarginatæ, internè serratæ. Processus mesosterni anticè porrectus.

MEGALORHINA HARRISII, *Savage MS.* Supra opaco-velutina, capite supra albo, cornu subtùs castaneo ; pronoto brunneo, luteo-marginato ; scutello brunneo, elytris olivaceo-nigris maculis numerosis fulvescentibus in seriebus 5 (in singulo elytro) dispositis, pedibus castaneis, tibiis tarsisque 4 anticis nigris, tarsis posticis flavescentibus. Long. corp. (exclus. capitis cornu) lin. 18; latitudo elytrorum lin. 9.—Hab. cum præcedente (D. Savage). In Mus. D. Hope.

" Descriptions of some new Scutelleridæ from Cape Palmas." By J. O. Westwood.

After detailing the structural characters of Plataspis Bucephalus, *White*, descriptions are given of two new species of the same genus of large size, collected at Cape Palmas by Dr. Savage, and forwarded by him to Mr. Hope.

PLATASPIS (APHANOPNEUMA) BILOBA, *Westw.* Supra obscurè lutea, nitida, depressa, lateribus subparallelis, undique nigro-guttulata, guttulis punctatis, spatio magno bilobo fulvescenti ad basin scutelli, capite maris in lobos duos magnos conicos convergentes producto, spiraculis lateralibus in membranâ tenui ferè inconspicuis. Long. corp. lin. 7.—Hab. Cape Palmas (D. Savage). In Mus. Hope.

PLATASPIS (CANTHARODES) CŒNOSA, *Westw.* Supra obscura sublutescens, opaca, nigro punctatissima, scutello fasciâ indistinctâ medianâ subpallidiori, capite magno subconcavo, posticè in collum angustato, prothorace anticè valdè emarginato, lateribus rotundatis in medio parum angulatis, pedibus subgracilibus. Long. corp. lin. 8.—Hab. cum præcedente.

"Note on two species of Moths taken at great distances from land." By W. F. Evans, Esq.

The two insects in question were Sphinx atropos and Porthesia auriflua. They were caught on board Her Majesty's ship 'Rodney' (one of the experimental squadron), which left Portsmouth on the 15th of July, and lost sight of land in two days; which they never saw, nor were certainly within 200 miles of, until beating up to Cork in September; and when *at least* forty miles off Cape Clear, wind due east (or off the land), the specimen of Sphinx atropos was captured on one of the topmasts.

The specimen of Porthesia auriflua was taken from off one of the boats which had [cxliii.] been recently tarred, at about the extreme point of the cruise in the Bay of Biscay, and at least 200 miles from land. The sailors called the Sphinx an Irish paroquette. Great difficulty was experienced in killing it, but its death was after some time effected by means of creosote.

Extracts from a letter addressed by Dr. Savage to Mr. Hope on some of the insects of Cape Palmas, dated Cape Palmas, W. Africa, 7th March, 1845. Communicated by the Rev. F. W. Hope.

"GOLIATHUS.—Ceratorhina frontalis and aurata feed upon a small fig, the fruit of the Ficus microcarpa; also the ciliolosa and other species, of which we have several. One resembles in its habits F. Indica; so much so, that it had obtained the common name of 'Banyan-tree.' C. frontalis feeds also upon the fruit of another tree, belonging to the Linnæan class Pentandria and order Monogynia; further examination of this tree, botanically, I have not had time to make. Upon these fig-trees we find also the Cetonia guttata of Oliv., C. marginata, the different species of black Cetoniæ, green, &c., feeding upon the juices of the ripe fruit.

"I have fully established the point that the Goliathi proper feed upon juices; and all the Cetoniæ (especially the Goliathideous species) that I have captured have been taken in the act of extracting juices from fruits and plants. The tree upon which the G. Cacicus is found I suppose to be a gigantic Eupatorium, from the juice of the bark of which that insect, and also Cetonia guttata, derive their nourishment.

"The C. guttata being found upon two different trees, feeding at one time upon the juice of the bark, at another upon that of the fruit, shows the manner in which its food is supplied the year round. The figs yield several crops during the year, and the different species come to maturity at different times. The Mecynorhina Savagii of Harris feeds upon a gigantic climber, which upon being cut yields an astonishing quantity of pellucid water. So abundant is this fluid, and so negative in its qualities, that the natives, when a stream of water is not at hand, resort to it to quench their thirst. (See 'A description of an African Beetle allied to Scarabæus Polyphemus, with remarks on some other insects of the same group,' published in the Journal of the Boston Natural History Society, 1843, by Thaddeus William Harris, M.D.). I have remarked that almost every individual Cetonia that I have sent to England I have found feeding upon the juices of plants; one (Plæsiorhina mediana, figured by Mr. Westwood) I captured in a rose-apple, through which it had made a hole; another, an Heterorhina (Westwood), I captured in the act of extracting the juice of the Zea maize, having made quite a hole at the foot of the young succulent leaves.

"I also send several pairs of C. guttata. One of the individuals of the series (a male) you will find with a different armature on the clypeus from all the others; the clypeus itself is extended, while the central horn remains the same. I have had several hundreds of guttata in my possession, but the individual in question is the only one of [cxliv.] the kind. Is it simply a variety of guttata? It was captured with guttata proper, and brought to me by my collector with not less than fifty specimens of that insect. October and November are the months in which frontalis, aurata and guttata have been found most abundantly this year.

"Apidæ.—I send eight specimens of the best honey-bee of this region; it is that from which the wax of commerce (as I suppose) is derived. The local name at this point (region of the Grebos) is 'Duh' (pronounced Doh). The natives (I speak only of this tribe—Grebos,—the native inhabitants of Cape Palmas) do not domesticate them. Occasionally a hive will be seen in a Gregree or Fetish house, attached or placed there, and looked upon as a sacred object. I have known only one instance, that of a noted doctor, when it was made a private Fetish. Their sting, it is said, is very severe, and much dreaded by the natives. They make their nests generally in the cavities of old trees. I have succeeded in taking one swarm and domesticating them. When the natives desire their honey they make a bundle of splintered bamboo, about six or ten feet in length, and, setting one end on fire, apply it to the entrance of the nest, which soon destroys them. The wax is not an article of commerce here, and is used to a very limited extent among the natives. The principal use by them is to make tight small boxes, &c., to protect their contents against the bad effect of water on the sea as they go off to vessels.

"There is a second species the local name of which is 'Nuh' (pronounced Noo), about the same size as that of Duh. It is of a darker aspect, as also its wax, which is held in no estimation by the natives. This bee is said by some to be stingless; I am unable to decide this point.

"A third species exists, very small indeed, of a very light colour, approaching closely to white; local name 'Dafre' (pronounced Darfray). It attaches its nest to the surface of trees, and delights in lofty positions. The nest varies in size from a man's fist to three or four times that size, and is very light in aspect, nearly white. All admit that this bee is stingless. I regret that I have no specimen at hand. I mention these different species at the present time, simply because I have forwarded them in the box.

"A fourth species is found with the local name 'Vranh;' French sound, the *an* sounded like *an* in 'franc.' Many of the natives sound it as if written with *f*, Franh. This species burrows in the soft sticks of which the rafters in the natives' houses are made. They take a longitudinal direction, and extend from three to ten inches in length. They have the diameter of a bullet; sometimes two will be seen parallel. At the end will be found a shallow excavation, in which are deposited the eggs, and which are separated from the main cell by a perpendicular division, consisting of the fine particles of the wood made in process of excavation, united by some agglutinal, which no doubt they have the power of secreting. One of the specimens sent differs from the others. Is it not a male? It was found in the same nest with the others."

[cxlv.] January 5th, 1846.—The Rev. F. W. Hope, F.R.S., President, in the Chair.

Mr. Edward Doubleday exhibited a large web, of a delicate silken texture and four or five yards long, sent from Mexico, and intended for the collection of the British Museum, known by the name of the Tela de Maiz, spun by the caterpillars of some small Yponomeuta or Anacampsis over heaps of maize laid up in store.

The President exhibited a portion of Mr. Fortnum's collection of insects formed at Adelaide in South Australia, with drawings of some of the more remarkable kinds, and announced that it was intended that a share of the duplicates should be placed in the collection of the Entomological Society.

Mr. Bedell (who was present as a visitor) exhibited a specimen of Argyromiges Roborella of Zeller, a species new to Great Britain.

A note was read by Mr. Brayley, accompanied by a species of Anthomyia (A. pluvialis, *Linn.*?) observed by a druggist to settle in great numbers on the filter when he was preparing tincture of cantharides, and at no other time. They did not however come out of the cantharides.

Extracts were read from letters addressed by Mr. Benson to Mr. Westwood, containing notices of four new species of Paussidæ recently captured in India (detailed descriptions of which have been subsequently published by Mr. Benson in the Calcutta Journal of Natural History).

A decade of new Cetoniidæ, chiefly sent from Cape Palmas by Mr. Savage, was read by the Rev. F. W. Hope.

Mr. E. Doubleday noticed, with reference to the minutes of the Meeting of the Society on the 2nd of December, 1845, as published in the Journal of the Proceedings of the Society, that his opinion then was that Papilio Ædea of Clerck is distinct from, although closely allied to, Eterusia tricolor, *Hope*; and so far as regards their antennæ, Eterusia, Erasmia and Amesia are not generically distinct.

Anniversary Meeting, January 26th, 1846.—The Rev. F. W. Hope, President, in the Chair.

The Rev. F. W. Hope was re-elected President, W. Yarrell, Esq., Treasurer, and J. O. Westwood, Secretary; and Messrs. T. Tatum, Douglas, Spry, and S. Stevens were elected into the Council in the place of Messrs. Bond, W. W. Saunders, Evans, and J. F. Stephens.

The President delivered an Address, which at the request of the Meeting has since been published for distribution among the members.

February 2nd, 1846.—The Rev. F. W. Hope, President, in the Chair.

The President nominated W. Spence, T. Marshall, J. Walton and A. Ingpen, Esqrs., as Vice-Presidents.

Mr. Longley exhibited a specimen of one of the species of Ophiusa common on the western coast of Africa, captured on the 23rd of May, 1845, in latitude 24° 15′ north [cxlvi.] and 24° 45′ west longitude, the nearest land being the island of St. Antonio, one of the Cape de Verde islands, distant 390 miles, and the main land being 470 miles distant, the wind being from the north-east.

Mr. Bedell exhibited a specimen of Sphinx Convolvuli, taken on board ship on the 9th of September, 1845, about forty miles from the Land's End, in lat. 49° 24′ north, and longitude about 5° 30′ west. The ship left Cadiz on her return on the 11th of August, and the wind at the time of the capture was moderate from the north-east, the insect being observed to fly from the direction of the wind.

Mr. Westwood exhibited drawings and specimens of the curious cases made by the larvæ of Clythra 4-maculata found among the *débris* of ants' nests, from the collection of the Rev. F. W. Hope.

The Rev. F. W. Hope read a paper containing descriptions of the following new Coleoptera, collected by Mr. Fortnum at Adelaide in South Australia:—

Corynophyllus Fortnumi, *Hope*. Female: the male having been previously described and figured by Mr. Hope in the 'Transactions' of the Society.

Semanopterus, *Hope*. A new genus, in habit approaching Cheiroplatys, but distinguished by the elevated lines on the elytra and general sculpture. It possesses the grooved thorax of Cheiroplatys, and seems to approach Phileurus. The species are found under dead bark. Detailed descriptions and figures of the parts of the mouth were given.

Semanopterus Adelaidæ, *Hope*. Niger, clypeo cornu brevi armato; thorace glabro in medio sulcato, sulco sparsim punctulato; elytris lineis elevatis politis, interstitiis punctulatis, punctis triplici serie impressis. Long. corp. lin. 10½.

Semanopterus subæqualis, *Hope*. Niger, clypeo dente parvo armato; thoracis sulco haud fortiter impresso, punctato; elytris ferè æqualibus, lineis elevatis et punctis triplici serie ordinatis. Long. corp. lin. 10.

Semanopterus depressus, *Hope*. Niger, pectore pilis ferrugineis obsito; clypeo dente parvo armato; thorace sulcato, disco glabro sub lente tenuissimè punctulato; elytris lineis quibusdam elevatis, punctisque in triplici serie ordinatis; ano rubro. Long. corp. lin. 10.

Onthophagus cereus, *Hope*. Niger, nitidus; antennis piceis; clypeo ferè trigono, posticè furcato, seu occipite lamina lata bicorni armato; thoracis dorso canaliculato, anticè retuso, in medio bituberculato; elytris sub forti lente lineato-punctatis.

Onthophagus Adelaidæ, *Hope*. Nigro-æneus, clypeo sub-bidentato, posticè furcato, seu cornubus duobus acutis lateraliter divergentibus armato; thorace atro-æneo et granulatè rugoso; elytris depressis, sub lente striato-punctatis.

Aphodius Adelaidæ, *Hope*. Niger, nitidus, clypeo subemarginato; antennis
[cxlvii.] atris; thorace glabro; elytris sub lente striato-punctatis; corpore infra nigro; femoribus tibiisque rubro-piceis.

Aphodius cincticulus, *Hope*. Affinis *A. anachoretæ*, Fab. Capite nigro subemarginato, anticè flavescenti, tuberculo unico armato; thorace atro nitido, margine omni pallescente, scutello flavo; elytris striatis, fusco-flavis, margine flavescenti, sutura nigra.

Aphodius sculptus, *Hope*. Niger, antennis flavo-piceis; clypeo emarginato; thorace varioloso-punctato; elytris lineis elevatis glabris intermediis sculptilibus; corpore infra atro nitido, pedibus concoloribus.—Port Phillip.

Aphodius Tasmaniæ, *Hope*. Fusco-brunneus, clypeo integro vix reflexo; thorace nigricanti punctulato, margine omni pallescente; elytris striato-punctatis fusco-brunneis; corpore infra concolori, pedibus flavescentibus et ciliatis, posticis longissimis.—Van Diemen's Land.

APHODIUS HOWETTI, *Hope*. Præcedenti affinis, at minor. Fusco-piceus, clypeo integro vix reflexo; thoracis disco nigricanti punctulato, margine omni rubro-piceo; elytris striato-punctatis atro-piceis; corpore infra flavescenti, pedibus concoloribus.—Port Phillip.

These descriptions were accompanied by some verbal observations on the Stercoraceous beetles of New Holland. Mr. Fortnum stated that the Aphodiidæ which he had observed possess the same habits as the Melolonthidæ in England in flying by night, and that they are found in human fæces, but are never met with more than five miles from the coast. Several species of Onthophagi are also found in human fæces.

Mr. E. Doubleday observed that he had noticed the small Onthophagi in North America upon bones; and in allusion to the attraction offered to insects by putrid or decaying matter, he stated that in some parts of Peru the splendid butterflies of the genus Morpho are captured in great numbers upon the dung of cattle, and are used to decorate the altars of the churches on saints' days and great festivals.

Mr. Spence stated, that from his own observations he was inclined to think that a much higher degree of instinct had been attributed to the sacred beetles than they really possessed. He had observed them in Italy for a long time, and had never observed that they formed a hole previous to rolling their balls; and that instead of assisting one another, the whole scene was one of confusion, each individual endeavouring to appropriate whatever it could to its own purpose. Mr. E. Doubleday also stated that his own recollections of the tumble-dung beetles of North America coincided with those of Mr. Spence, and that he had never seen any pitfall formed, but that the insects sunk their balls in the same way as the Necrophagi, by merely scratching the earth from beneath them.

[cxlviii.] March 2nd, 1846.—The Rev. F. W. HOPE, President, in the Chair.

Two boxes of Lepidopterous insects, sent from Ceylon by R. Templeton, Esq., were exhibited by Mr. Westwood.

Mr. J. F. Stephens exhibited a pupa-case of the emperor-moth of an irregular form, being nearly twice the ordinary size, and having the appearance of being double, from which however only one moth had been produced.

Captain Parry exhibited living specimens of a new species of Ditomus, which he had received inclosed in quills transmitted by post from Lisbon.

Mr. S. Stevens communicated the following new and very effective method of relaxing insects adopted by Mr. Dale:—"I procure about a dozen shoots with the leaves of the common laurel, the younger the better, put them into a coarse bag or cloth (shot bag I use), bruise them well with a wooden mallet till the bag becomes quite moist, then put it into a glazed jar or other large vessel, and stick the insects on the top of the bag, which must be tied over with a bladder, or secured in some way so that it is perfectly air-tight. Twenty-four hours is generally sufficient to relax most insects; but one great advantage is, that if they remain a week or ten days in the laurel, it does not in the least injure the specimens, so that they can be set out at any convenient opportunity. It also completely destroys the mites or mould, if the specimens happen to be infested; and it will be found to have many very great advantages over the old plan of damp sand or flannel. I was in hopes, from experiments that I made on two or three green species, that the colours would not fly; but I since regret to find on further trial, that Hipparchus papilionarius, Hemithea vernaria and Cythisaria are considerably changed by it. Mr. Dale informs me it answers equally well with the other orders, he having relaxed nearly the whole of his dragon-flies; and it is much used at Bristol for the Hymenoptera: it also effectually relaxes the skins of birds, and kills the vermin much better than camphor."

Mr. Marshall mentioned that a compound formed of one drachm of corrosive sublimate to eight ounces of the strongest alcohol was the most effectual remedy, when washed over an insect, against the attacks of mites, &c.

Mr. Hope read a paper containing descriptions of some new species of Australian Buprestidæ.

Mr. Westwood exhibited drawings of two very splendid Chalcididæ, forming a new genus, from Adelaide, collected by Mr. Fortnum.

Mr. Douglas read a series of observations suggested by, and in opposition to, the views concerning Insect Life, published by Dr. Badham.

It was stated that Captain Best, a very active entomologist, was one of the officers killed in the recent battle of Moodkee in India, and that Lieut. Edwardes, a Member of the Entomological Society, was amongst the wounded in the same engagement.

The deaths of Dr. Hoffmeister, a physician in the suite of Prince Waldemar of Prussia, and a zealous naturalist, who was killed at the battle of Ferozeshah, and of Mr. Samouelle, were also mentioned.

[cxlix.] April 6th, 1846.—W. Spence, Esq., F.R.S., in the Chair.

A letter was read from Sir Gardner Wilkinson, thanking the Society for his election as a corresponding member.

Captain Parry exhibited a box of insects recently obtained from the Gold Coast, including many rare and interesting species, as well as specimens of Goliathus Cacicus; a locality worthy of notice, as Mr. Savage had stated his opinion that the Gold Coast was the region of G. Drurii, and the Grain Coast that of G. Cacicus.

Captain Parry also exhibited some heads of seeds similar to that of millet, obtained from the interior of South Africa, 300 or 400 miles from the Cape of Good Hope, nearly every seed of which was infested by a living specimen of a small Calandra allied to C. oryzæ.

Mr. F. Bond exhibited a specimen of Phryxus Hippolytes, a remarkable parasitic crustacean allied to Bopyrus, recently described by Rathke in the 'Nova Acta,' and which had been found beneath the abdomen of a white shrimp (*Pandalus annulicornis*) on the coast of Sussex.

Mr. E. Doubleday exhibited a new species of the genus Papilio, P. Dionysus, *Doubl.*, allied to P. Hippocoon, from the coast of tropical Western Africa, from the collection of Mr. Loddiges.

Mr. Ingpen exhibited a specimen of a species of Polistes from Mexico, from the body of which several filamentous Fungi had vegetated; likewise the nest of the campanular wasp of Britain.

Mr. S. Stevens exhibited a specimen of a new British moth, Graphiphora tristigma, *Ochsenheimer* (but not of Stephens), allied to Gr. triangulum, which he had reared from a caterpillar found feeding by night on the blossoms of the sallow in April, 1844, at Weybridge, as Mr. Stevens believes. The insect hitherto known in this country under the name of tristigma is distinct, and is the Noctua rhomboidea of Esper and Ochsenheimer. He also exhibited specimens of Orthosia leucographa, rubricosa, munda, miniosa, Calocampa exoleta, and Xylina rhizolitha, taken this spring from the blossoms of the sallow in the neighbourhood of Dorking; also Orthosia munda, populeti and Calocampa vetusta from Wimbledon Park, having captured these insects (in consequence of the mildness of the season) a month or six weeks earlier than he took them last year.

Mr. E. Doubleday also exhibited, on behalf of Mr. Angas, a new genus of butterflies captured in New Zealand by that gentleman, allied to Polyommatus; also a new species of Agarista, from Van Diemen's Land.

The following memoirs were read:—

"A Monograph on the genera Pseudomorpha, Adelotopus, &c." By J. O. Westwood, Esq., F.L.S.

"Descriptions of some species of Oiketicus from the island of Ceylon." By R. Templeton, Esq.

"Descriptions of three new exotic Insects." By A. White, Esq., since published in the 'Annals of Natural History,' by whom also some observations were made on [cl.] the geographical distribution of insects in North America as compared with New Zealand.

May 4th, 1846.—W. Spence, Esq., F.R.S., Vice-President, in the Chair.

The Secretary announced that the Address delivered by the President at the last Anniversary Meeting had been printed and was ready for delivery.

Mr. Moore, jun., exhibited some foreign beans attacked by a larva which had eaten through them, spinning its web for a passage.

Mr. S. Stevens exhibited a specimen of Deilephila lineata, taken at Hammersmith on the 16th of last April; also a specimen of Cleora pictaria, found on palings at Dartford Heath on the 12th of last April. It was also stated that specimens of D. lineata had been taken at Langport, Somersetshire, and by a nurseryman at Bristol in the past month of May, as well as a specimen of D. Celerio at Manchester.

He likewise exhibited the larvæ of Polia tincta and Triphæna fimbria, both found on the birch at Birchwood at the beginning of May.

A memoir by W. W. Saunders, Esq., containing descriptions of some new species of Australian Chrysomelidæ, was read.

June 1st, 1846.—Thomas Marshall, Esq., Vice-President, in the Chair.

Mr. S. Stevens exhibited a second specimen of Deilephila lineata, taken at Hammersmith a short time previously; also several cases of a tough leathery texture, formed by a lepidopterous larva which eats through the base of the horn of the two-horned rhinoceros, from Southern Africa.

He also exhibited some twigs of oak from Darenth, Kent, completely defoliated by the small green Tortrix viridana, which was extraordinarily abundant this season.

Mr. Ingpen exhibited a case of insects from Adelaide, including various rare and interesting Coleoptera, Psychopsis mimica, &c.

Mr. Harrington exhibited various splendid Coleoptera from the Himalayan range of India, including the male of Cheirotonus Mac-Leaii, *Hope*, &c.

Mr. Moore, jun., exhibited a cocoon of Eriogaster lanestris of a globular form, which on being opened was found to contain two male chrysalides; and Mr. Weir mentioned that he had observed the same circumstance several times in the same species, as had also Mr. Longley.

Mr. Westwood exhibited specimens of a minute species of the Dipterous genus Phytomyza, the larva of which mines within the leaves of the holly, causing large unsightly blotches upon them, and which had occurred in great profusion this spring. He had also reared a small parasitic Ichneumon from the leaves, which keeps the Phytomyza in check. He also exhibited specimens illustrating the history of the minute moth Argyromiges Blancardella, the larva of which mines the leaves of the evergreen oak, the chrysalis pushing itself half through a hole which it forms in the [ch.] leaf in order to effect its escape. He had also reared the parasitic Ichneumon attached to this species. He also exhibited specimens of the Coccus manniparus of Klug, brought from Arabia by Ehrenberg, as well as some manna brought from Mount Tabor by Lieut. Wellstead; and exhibited specimens of the Womela, an analogous secretion formed upon the under sides of the leaves of the various species of Eucalyptus in New South Wales by a minute species of Psylla, numbers of which were found secreted amongst the Womela. Mr. Westwood had been informed by Mr. Gould, that for several months last year this secretion formed a large portion of the food of the natives. The insects are attacked by a minute and very beautiful parasite of the genus Encyrtus. Mr. Harrington also stated that the genus Eurymela produces a kind of manna on the Eucalypti, and which falls to the ground in the shape of small white crystals.

A letter was read from W. Spence, Esq., inclosing an extract from a letter from his son R. Spence, Esq., giving an account of the discovery, by Professor Schiödte, of as many as twenty species of blind insects of different orders and genera, all new, in the caves of Styria; so that it would appear that there exists a subterranean fauna of blind animals. Ten of the insects were Coleopterous. It was mentioned that a Carabideous genus without eyes has lately been described by the German naturalists, and that various blind insects and spiders had been found in the mammoth-caves in Kentucky. (See Dr. Erichson's 'Bericht' for 1844).

An extract from a letter addressed by Captain Boys to Mr. Westwood was read, giving an account of the habits of some Indian species of ants, white ants, and other insects:—

"On our way down towards Sukker, I observed what I consider an undescribed species of Termes, of an unusually large size, of which I made a note. The workers alone are nearly half an inch long. I never saw such monsters. The nest is peculiar. From the surface of the plain on which I observed these nests, which are conical in form, little hillocks of about six inches high were seen at various distances from each other, from five feet to twenty apart. These were composed of grains of earth worked up to about the size of millet seeds, and were quite loose, and might be taken up in handfuls. Inside each of these heaps, a raised structure, branching off in three or four short arms, was to be found, with an internal passage from the surface of the earth to each branch; but how the creatures contrived to cover the whole without appearing outside is left to conjecture. The apex of each cone was about three-quarters of an inch from the arborescent-looking structure inside. The latter was also composed of small pellets of earth, but half as fine as the superincumbent grains, and were moreover glued firmly to each other. I removed the earth from the outside of several nests, and blew away all the pellets, leaving only the stump sticking erect from the earth.

At the top of the latter and at the end of each branch was an orifice,—the continuation of the internal canal. In about ten minutes hosts of the inhabitant ants came up with earth freshly manipulated, and began pouring their pellets out of each orifice; the [clii.] latter of course were carried by their jaws. I sat observing them for about an hour, when I marked the spot and returned to camp. In the afternoon, on my return to it, all the stumps were again covered over.

"The red ant you mention as having been described by Colonel Sykes, is, I think, familiar to me. I allude to an ant of about four lines long, which builds a beautiful nest in trees, mostly in a mango-tree. The nest is composed internally of a web much resembling that of the earth-spider, but much closer, and infinitely stronger in texture. The outer portion of the nest is a thatch of leaves, brought together by main force, and joined one to another by the forementioned web. I have seen nests almost as round as footballs, and quite as large. The mango-tree has its leaves long and oval, similar in shape to each segment of the casing in a tennis-ball, and the end of each branch bears a bunch of leaves (in a circle) to the number of eight or ten: however, these leaves are depressed and brought together in an admirable manner. The web bears writing on with facility, and the insect in the winged state is green. The bite of the worker is severe; and the scent of the formic acid, when the nest is interfered with, is so strong as to be almost insupportable.

"There is also a black ant which forms its nest in trees, in the Himalayas above Kimaon, but I have not studied their habits. The nest looks like an agglomeration of sawdust.

"Of *locusts* there are undoubtedly two species, exceedingly distinct, and which migrate in swarms, doing intense damage:—one, a pink-underwinged kind with fuscous patches on the upper wings; the other with yellow underwings, and in other respects nearly similar, except that instead of being tawny it is of bright yellow, and which is far more common than the former. Again, there are three other species which are not so abundant, but still do much damage. These I have only observed in loose flocks, and have never taken them in the larva state. The whole country has suffered severely from the ravages committed by the two first species noticed, during the greater portion of last year and the latter end of 1843. The pink underwing species were so numerous in the terrai at the foot of the Himalayas near Bennourie, on the road to Almorah, that the branches of shrubs and trees on which they settled were completely hidden by them, and twigs a finger thick broken down by their weight alone. The ground one brickdust-red. I observed these wretches in flights extending for miles, so thick as absolutely to obscure the sun, and cause some difficulty to my palanquin-bearers in getting through them, as at every step they rose in swarms, striking and flying against the men's faces in every direction. This was in the middle of October, in 1843. Several large flights of the yellow kind I had observed a month or six weeks previously, at Almorah. Of the pink description the colour is more or less intense, according to age, or quantity of rain they may have been exposed to. In fresh or lately matured insects the underwings are a very pale pink, and the outer ones not much darker. In old and tough specimens these latter organs become a dirty claret-and water-colour, inclining to Indian red. Of the yellow kind I obtained the larvæ [cliii.] in abundance at Nusseerabad in the latter end of July, 1844, though I had never previously seen the insect in this state during nineteen years' sojourn in India. They were as numerous as their parents, swarming on every bush, and crawling all over the ground for miles among the hills near the above-named cantonment (these hills are a portion of the Aravalli range, which rise near Delhi). The larva is very handsomely marked with orange-yellow and black; the face, if I may so term it, is bright orange-yellow, the portion behind and below the eyes a dark maroon. Legs (posterior ones) bright yellow, banded with black; winglets light yellow, faintly striped with dusky connected spots. Antennæ black, with the two first joints yellow. But nothing but a correct delineation, or the insect itself, can give a just idea of its handsome markings.

"The two specimens now forwarded of a new species of Colias, together on one card, are, I am strongly inclined to think, different only in sex; and I consider the white as the male, having observed it hovering over the red. And besides this, I have been led to the conclusion by the fact, that for one red I took at least five white. The tree jungle about the place is called the Peeloo: its technical name is unknown to me; but the wood is held in high esteem by the natives for the purpose of making tooth-brushes.

"I have two species of Celyphus from Mhow in Malwa; one a bright bottle-green, the other darkish brown: the smaller species is about three lines long, the other a line longer. They resemble some of the Fungicolæ, but are rather longer in shape. The hard case (beneath which the wings are distinctly visible and extrude over the abdomen) is very like what obtains in many species of Scutelleræ."

A letter was read from Mr. Boreham, suggesting that the colours and forms of larvæ might possibly be preserved by inclosing them in glass tubes hermetically sealed from which the air had been extracted.

Mr. White read the descriptions of several new exotic Hemiptera, since published elsewhere, and alluded to the alteration produced by desiccation in metallic-coloured insects, whence a species of Callidea, described under the name of purpurea by Mr. Westwood, was, when alive, of a metallic-green. Spirits of wine, warm water, or æther were equally efficacious in restoring these colours after death. Mr. White also stated that Mr. Walker was engaged upon a work on the British Aphides, to be published by subscription.

July 6th, 1846.—W. Spence, Esq., F.R.S., Vice-President, in the Chair.

Mr. Crosse gave a minute account of the mode of proceeding adopted by him in his galvanic experiments, during which a species of Acarus had been developed; specimens of which he promised to forward to the Society for identification.

August 3rd, 1846.—Thomas Marshall, Esq., Vice-President, in the Chair.

Among the donations were a number of Arpedium subpubescens, a rare species of [cliv.] Staphylinidæ, sent by A. H. Haliday, Esq., for distribution among the Members.

Mr. Gutch exhibited several boxes of Coleoptera from Central Europe, and a new species of Fritillary butterfly from Servia. He also presented to the Society a quantity of specimens of Simulium Columbatchense, a small dipterous insect which attacks the cattle in the Banat, frequenting all the moist parts of the body, as the nostrils, anus, &c., and causing the death of great numbers of these animals. They occur on both banks of the Danube, appearing in clouds, and are supposed by the common people to be bred in a hole in a mountain where the body of the dragon slain by St. George was deposited.

Mr. Westwood exhibited a small box of Coleoptera from Western Tropical Africa, including numerous rare Tenebrionidæ.

Mr. W. W. Saunders exhibited a small box covered with the cases formed by the larvæ of an Australian species of Oiketicus, and including a number of specimens illustrating the natural history of six species of that genus, sent from the interior of New South Wales by Mr. Stevenson.

The following memoirs were read :—

"Descriptions of some new species of Helæus." By the Rev. F. W. Hope, F.R.S., &c.

"Description of a new species of Paussidæ from India." By J. O. Westwood.

"Note relative to the Larva of a species of Dipterous insect (evidently Anthomyia canicularia) infesting the human body." By Mr. George Downs, F.R.C.S.E.

"Description of a new genus of Lamellicorn Beetles from India." By J. O. Westwood.

"Note on a remarkable migration of swarms of common white butterflies across the Straits of Dover on the 5th of July, flying from the south or south-west, and which were also observed at Folkstone, and on the passage to Ostend, the wind blowing at the time lightly from the eastward; and on the Black Dolphin of the hop-plantations, regarded as the larva of the Coccinella." By H. L. Long, Esq.

Note from Mr. Louis Frazer, Corresp. M.E.S., giving an account of his entomological pursuits in Northern Africa.

"Notes on the Entomology of Australia, as observed during an expedition from Fort Burke to Port Essington." By Mr. Stevenson, Corr. M.E.S. Communicated by W. W. Saunders, Esq.

September 7th, 1646.—A. Ingpen, Esq., Vice-President, in the Chair.

The following memoirs were read :—

A note from Mr. Long, of Dover, on an attempt to naturalise Palingenia Virgo (a continental species of Ephemeridæ remarkable for its snow-white wings) by bringing over the ova in a bottle filled with the water of the Rhine where they occur, and by [clv.] placing them in the rivers in England. It did not appear that the experiment had been successful. Also further notes on swarms of white butterflies observed between Boulogne and Calais a few days after the 5th of July.

Note from the Rev. F. W. Hope on swarms of white butterflies, P. Napi and Rapæ, observed at Southend, Essex, on the 2nd of September, which disappeared the following day after depositing vast numbers of eggs; and on the occurrence of numerous specimens of Sphinx Convolvuli and Atropos.

"A memoir on the economy of the Driver Ants of Tropical Africa." By the Rev. T. Savage.

Mr. Evans exhibited various larvæ from New Holland.

Mr. W. W. Saunders exhibited a box of insects from Adelaide in Australia, containing illustrations of the natural history of various interesting species of Lepidoptera, with their parasites. Also the sexes of several new species of Thynnidæ, &c.

Mr. F. Bond exhibited a living specimen of Locusta Christii in full vigour, taken near Kingsbury, Middlesex. Also a remarkable variety of Hipparchia Janira, of which the ground colour of the wings was nearly white.

Messrs. Stevens and Weir exhibited specimens of Sphinx Atropos reared from the potato, remarkable for having been produced much earlier in the year than usual.

Mr. Weir also exhibited two specimens of Deilephila Livornica, taken in the spring at Lewes, Sussex.

Mr. J. F. Stephens stated, in allusion to the unusual heat of the present season, that he had observed at least three broods of Pontiæ and two of Bombyx lubricipeda during the summer.

October 5th, 1846.—The Rev. F. W. Hope, F.R.S., President, in the Chair.

Mr. Weir exhibited specimens of Deilephila Celerio and Cynæda dentalis from Lewes; also of Locusta Christii from Camberwell.

Mr. Evans also exhibited the same species of locust taken at the Nash Lighthouse near Cowbridge, Glamorganshire, in September, and stated that another specimen had been taken in the garden of the gate-house at Hyde Park Corner. Another taken at Littlehampton was exhibited by Mrs. Attegus, and Mr. Hope mentioned its occurrence at Southend. The following additional localities were also communicated by other members present: St. James's Park, Kennington, Margate, Epping, Durham, Glasgow, Cromer and the adjacent district (where it was numerous), and Newcastle.

Mr. Marshall stated that Deilephila Celerio had been taken at Hackney; and Mr. Moore, jun., exhibited a larva of D. Galii having a red head and anal horn, found upon the mullein near Southend. Also a Geometrideous larva found on the coast at the same place, to the body of which several long slender Fungi were attached.

Mr. Hope exhibited specimens of Sphinx Atropos, and stated that he had observed that the white-coloured varieties of the larvæ feed on the ash, whilst amber-coloured specimens feed on the potato.

[clvi.] Mr. E. Doubleday stated that the larvæ had been found at Cockermouth on Euonymus europæus; and Mr. S. Stevens mentioned that they had been so abundant at Margate that they had been collected as food for chickens. Mr. E. Doubleday also stated that his brother had dissected some specimens both of Sphinx Atropos and Convolvuli recently disclosed, and not one of the females was found to have the eggs developed in the ovaries. He also mentioned that Graphiphora subrosea had been recently captured at Whittlesea Mere, thus proving it to be indigenous; which was the more interesting, as it agrees in the structure of the antennæ with a North American group of which there is no other European representative. Deiopeia pulchella had also been captured at Epping at the end of September. He also stated that the larva of Polia occulta feeds upon species of Polygonum, and not on the dandelion as represented by some authors.

Mr. Hope stated that two specimens of Catocala Fraxini had been taken at Southend.

The following papers were read:—

Extracts from a letter addressed to Mr. Westwood by Captain Hutton, containing a series of observations on the Indian species of Papilio.

Extracts from a letter addressed to Mr. Westwood by R. Templeton, Esq., containing notices of some of the Lepidoptera of Ceylon.

The completion of Mr. Savage's memoir on the driver ants was also read.

Mr. E. Doubleday, in allusion to the two former communications, stated his belief that Papilio Panope and similis are the sexes of one species; also that P. Pammon and Polytes form but one species, as affirmed by Boisduval, though some females might be found coloured like the males; and that the insects regarded as the two species, P. Epius and Demoleus, by Captain Hutton, were the sexes of one species (as indeed Mr. Templeton had stated in his letter).

A requisition signed by nine members of the Society, addressed to the President and Council, for calling a Special Meeting to take into consideration a number of alterations in, and additions to, the existing by-laws, was read.

November 2nd, 1846.—The Rev. F. W. Hope, F.R.S., President, in the Chair.

Mr. Newport exhibited a box of Coleoptera, &c. from Melbourne, South Australia, including a large new species of Eucranium?, Cerapterus Hopii, &c.; and also a species of Blatta of which the left hind leg had evidently been reproduced, being smaller than the other. Instances of the reproduction of the antennæ, but not of the feet, had hitherto been noticed in this group.

Mr. Griffith stated that he had observed during the preceding autumn, on one small spot of woody ground at Addington Hill, near Croydon, a very great number of specimens of Cynthia Cardui.

Captain Frend stated that he had found Vanessa Urticæ in some quantity on the [clvii.] summit of the Sierra Nevada in Spain, 16,000 feet above the level of the sea, and that it was the only butterfly he had observed there.

Mr. Weaver exhibited a new British Noctua allied to Hadena adusta, and other rare Lepidoptera from Perthshire.

Mr. F. Bond exhibited a living specimen of Sphinx Atropos, and stated that he was convinced that the cry emitted by this insect was not produced by the moveable appendages at the sides of the thorax, as he had found that the noise was equally strong when the sides of the thorax were violently compressed and held tight. Mr. Newport, who had also examined the insect whilst alive, stated that in his opinion the noise was either produced by the lateral friction of the parts of the spiral tongue (maxillæ) against each other, or by their combined friction against the front of the prothorax, but added that this view required further observation.

Mr. F. Bond exhibited a very small papyraceous nest of a wasp, which had been suspended to a twig by a piece of horse-hair.

Mr. Moore, jun., exhibited several chrysalids of moths, the interior of which was filled apparently with minute parasitic Acari.

Mr. Westwood exhibited an extensive series of Cremastocheilidæ, from the collections of the Royal Museum of Stockholm, Messrs. Hope, Schaum (including the types of the species described by M. Gory), Turner, &c. He also stated that Entomobia Apum, described by Signor Costa (in a work presented the same evening), was the Braula cæca of Nitzsch; and that M. Blanchard had recently published a memoir on the impregnated state of the Hippoboscæ, in the bodies of which he had detected larvæ, contrary to the observation of M. Léon Dufour.

Mr. Newport, in reference to the statement made at the last Meeting, of the immature state of the ova in some specimens of Sphinx Atropos and Convolvuli, observed that he had recently detected a female of the latter species which had remained in the chrysalis state nearly its full period, and that he had detected the ovaries, but in a very slightly developed state, and which, he did not consider, would have ever arrived at their full state of development. A considerable discussion as to the cause of this non-development of the ova took place, in which, Messrs. Marshall and Westwood having suggested that it was owing to the great heat, Mr. Newport stated that he had found the ova as fully developed in specimens of Vanessa Urticæ which had been produced from the chrysalis in from 8½ to 9½ days, in a mean highest temperature of 70° to 75°, as in others which had remained in chrysalis thirteen or fourteen days with a mean highest range of temperature of from 55° to 60°. V. Io was developed in a few hours over ten days, when the mean lowest temperature during that period was 71°.06, and the mean highest 75°·55. This may afford some explanation of the fact, that the two broods of V. Io usually appear in this country only in the hottest parts of summer, July and August, when, in its natural haunts, it is usually about fourteen days in the pupa state.

Mr. E. Doubleday exhibited drawings of the ungues of the two species of Leptocircus, which he had found to be simple in the one and deeply bifid in the other. [clviii.] He also stated that Mr. Wing had obtained a larva of Sphinx Celerio found on a vine at Paddington.

The abundant occurrence of Vanessa Antiopa in different places during the past autumn was also noticed, especially at Tunbridge Wells by Mr. Stephens, at Yarmouth by Mr. Ingpen, and at Yaxley by Mr. F. Bond.

December 7th, 1846.—W. SPENCE, Esq., F.R.S., Vice-President, in the Chair.

Mr. Moore, jun., exhibited a quantity of flour infested with mites; also the eggs of some species of Acarus? arranged in rows on the under side of several feathers of birds; likewise a very minute paper nest of Vespa Britannica.

Mr. Westwood exhibited drawings and specimens illustrating the transformations of the common flea.

Mr. E. Doubleday read extracts from a letter addressed to him by M. Guenée, stating that he had become associated with M. Boisduval in the 'Histoire Naturelle des Insectes Lépidoptères,' and that the Nocturnal Lepidoptera would be described by him.

5-6

Descriptions of two new species of Papilio were read by J. O. Westwood.

Mr. Thwaites gave an account of the observations which he had recently made on the habits of Tinea granella, in granaries at Bristol. The moth appears in August, at which time it is advisable to attempt its destruction by fumes of sulphur. The insect remains in the larva state through the winter, being full-fed in October, when they seek out winter-quarters in the woodwork of the granaries, such as the beams, floors and supports, committing much damage by boring into them to the depth of half an inch, or sometimes an inch. If the wood be hard they do not excavate so deeply, but cover the surface with a thick layer of excrement; and it had been observed that they do not fear attacking kyanized wood; it was consequently suggested that it would be serviceable to coat the wood with plates of lead or other metal. Mr. Spence noticed how singularly this insect seemed to set at nought the supposed objections to insect life, attacking the knots of the wood, which were of course most strongly saturated with turpentine. On examining the débris left by these insects with a microscope, it was found to ~~consist~~ only of minute particles of gnawed wood, which did not appear to have undergone the action of ~~the~~ stomach; and it had ~~been observed~~, that when there was a sufficient mass of débris for their defence they did not bore into the wood. Mr. Spence also alluded to the change of instinct which these circumstances evidently proved the insects to have undergone from their natural state.

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